The World's Work

ARTHUR W. PAGE, Editor

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GENERAL JOFFRE

WHOSE STRATEGY IN REFUSING BATTLE UNTIL THE FULL FORCE OF THE FRENCH ARMY WAS CONCENTRATED AND BOTH FLANKS WERE PROTECTED BY FORTRESSES, PRACTICALLY ROBBED THE BRILLIANT GERMAN ADVANCE OF ALL RESULTS. WITH HIM (RIGHT) IS THE ONE-ARMED GENERAL PAU OF FRANCO-PRUSSIAN WAR FAME

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THE WORLD'S WORK

NOVEMBER, 1914

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THE MARCH OF EVENTS

THERE are people who see in the present European war the logical result of great armaments. There are others who point to Luxemburg as an example of no armament, and to the fate of Belgium as an example of the ineffectiveness of treaties. These views are put forward as contradicting one another. They do not. Armaments do not by themselves cause war, nor, as the Kaiser often stated, entirely prevent them. Neither do treaties. The matter is not so simple.

A boy who goes around among his acquaintances asking them to feel his muscle and explaining to them how he would beat each one if they should ever attack him, is very likely sooner or later to find them all against him so that his muscle cannot save him a good beating. On the other hand a boy that can't defend himself is likely to suffer also. Perhaps the proper course is "to speak softly and carry a big stick." The difficulty is that if the stick is very big the owner becomes very proud of it and finds it exceedingly difficult to keep from pointing to it—and this is bad.

In our own case perhaps we do not need a very large stick. A sound, well seasoned one of modest size, coupled with good manners, ought to suffice to keep us out of trouble so long as we do not covet our neighbors' goods. If we should have such designs, we will need a much larger stick. And conversely if we should affect a very large stick, our neighbors would begin to suspect us of such designs.

Yet in a proper proportion between the softness of our speech and the size of our stick there is no reason to oppose peace treaties or arbitration treaties. Of course, they will not stop wars between two nations that want to fight, but they do provide time and machinery for settling disputes between nations that do not want to fight, and it seems just as reasonable to be prepared to prevent war as it does to be prepared to wage war when it comes.

Nor does it argue that a nation is dishonest that makes such treaties, because it is possible that some of them may be broken. As long as the treaties are an honest effort to provide a preventive for war, there is no reason to cast reflections on the makers thereof because their efforts are not universally successful.

Trusting entirely either in the bigness of one's stick or the softness of one's voice does not seem to be as effective as a calm balance between the two.

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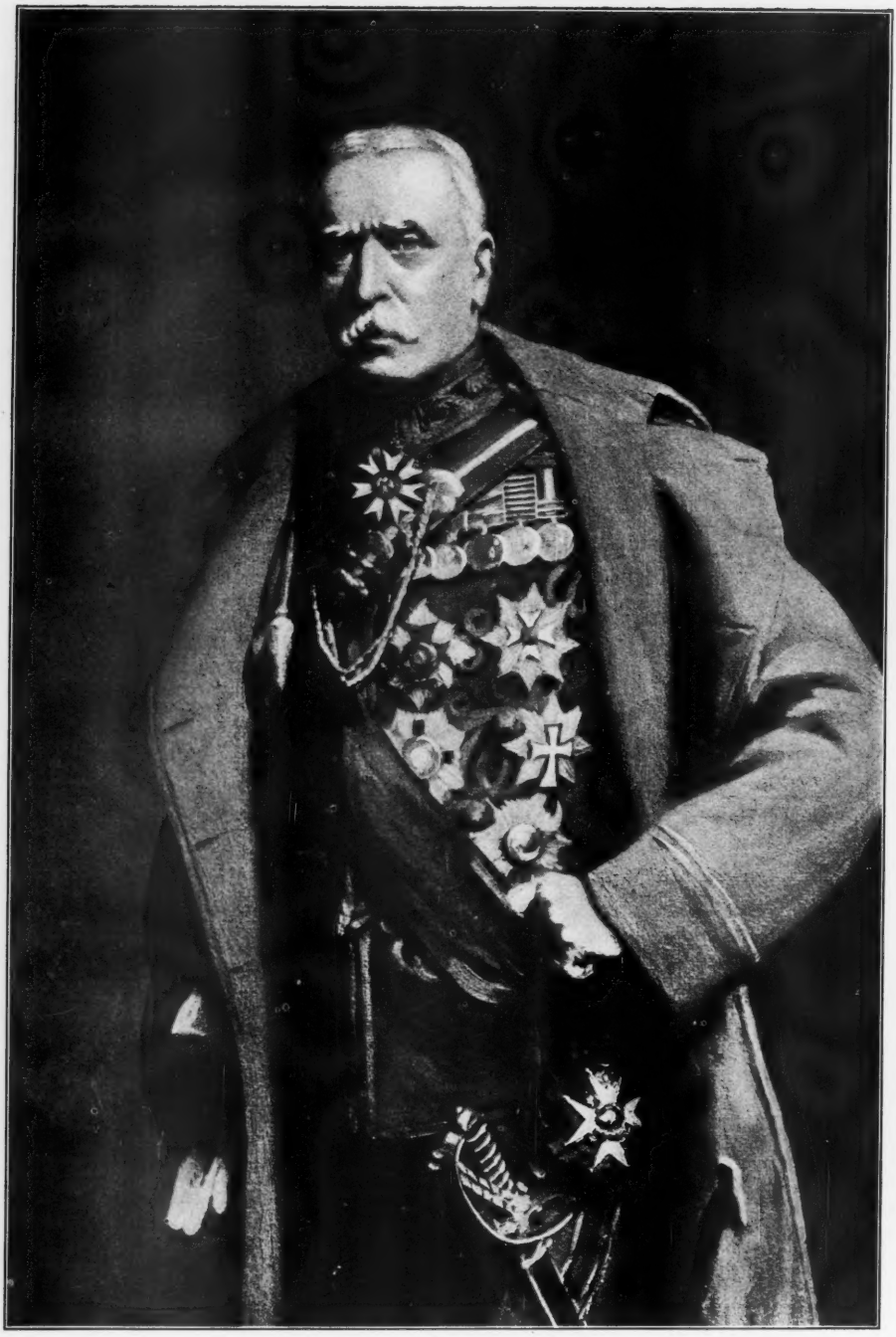

GENERAL SIR JOHN FRENCH

THE COMMANDER OF THE ALLIED ARMIES' SMALL ENGLISH CONTINGENT WHICH HAS DISTINGUISHED ITSELF. ALTHOUGH IT IS BUT ABOUT ONE TENTH OF THE ALLIED ARMY HIS FORCE IS HALF AGAIN AS LARGE AS THE UNITED STATES ARMY

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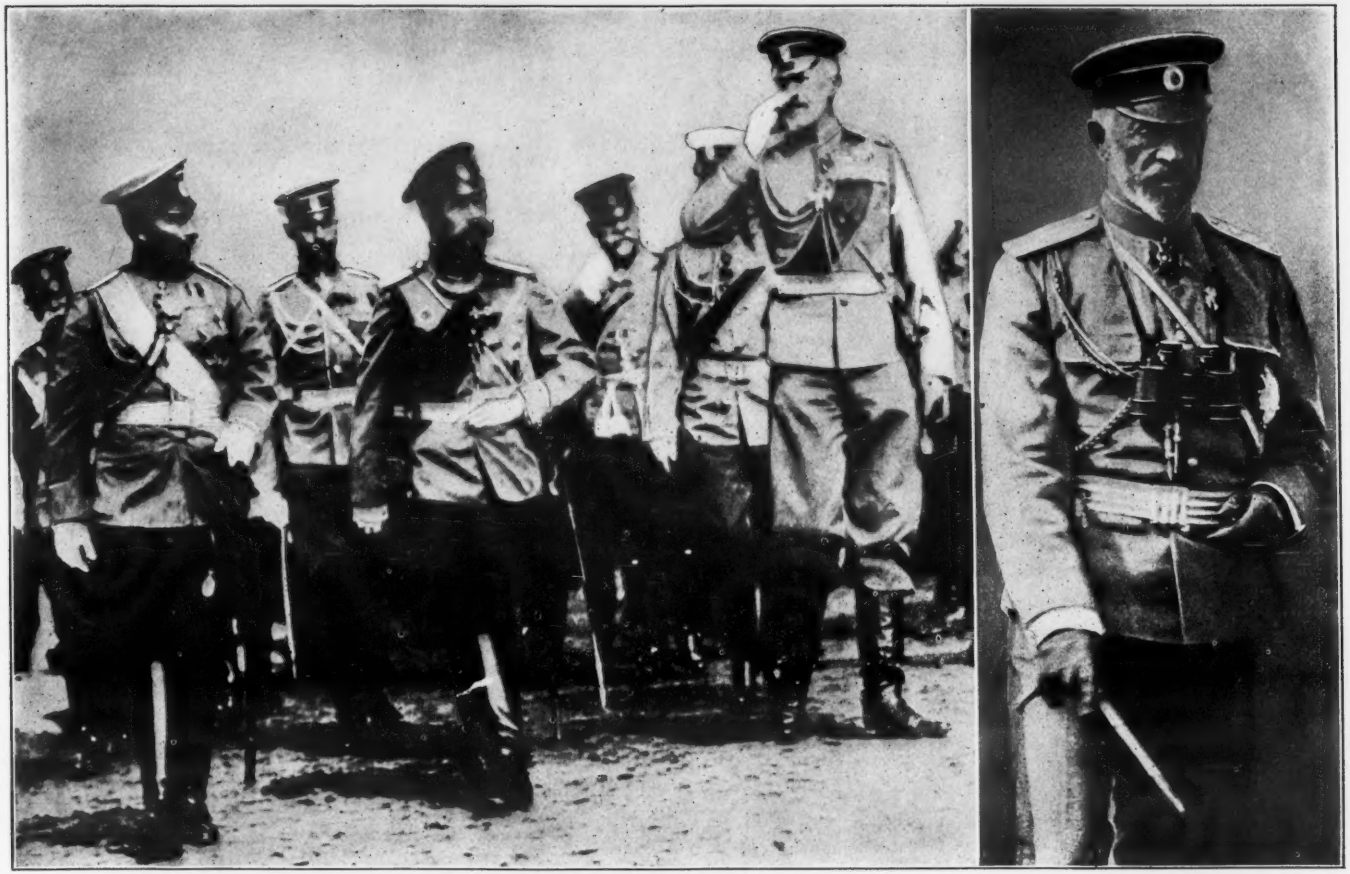
GENERAL VON KLUCK

WHO WAS IN COMMAND OF THE REMARKABLE FLYING ATTACK OF THE GERMAN RIGHT WING TOWARD PARIS AND LATER OF THE EXPOSED RIGHT WING OF THE GERMAN ARMY



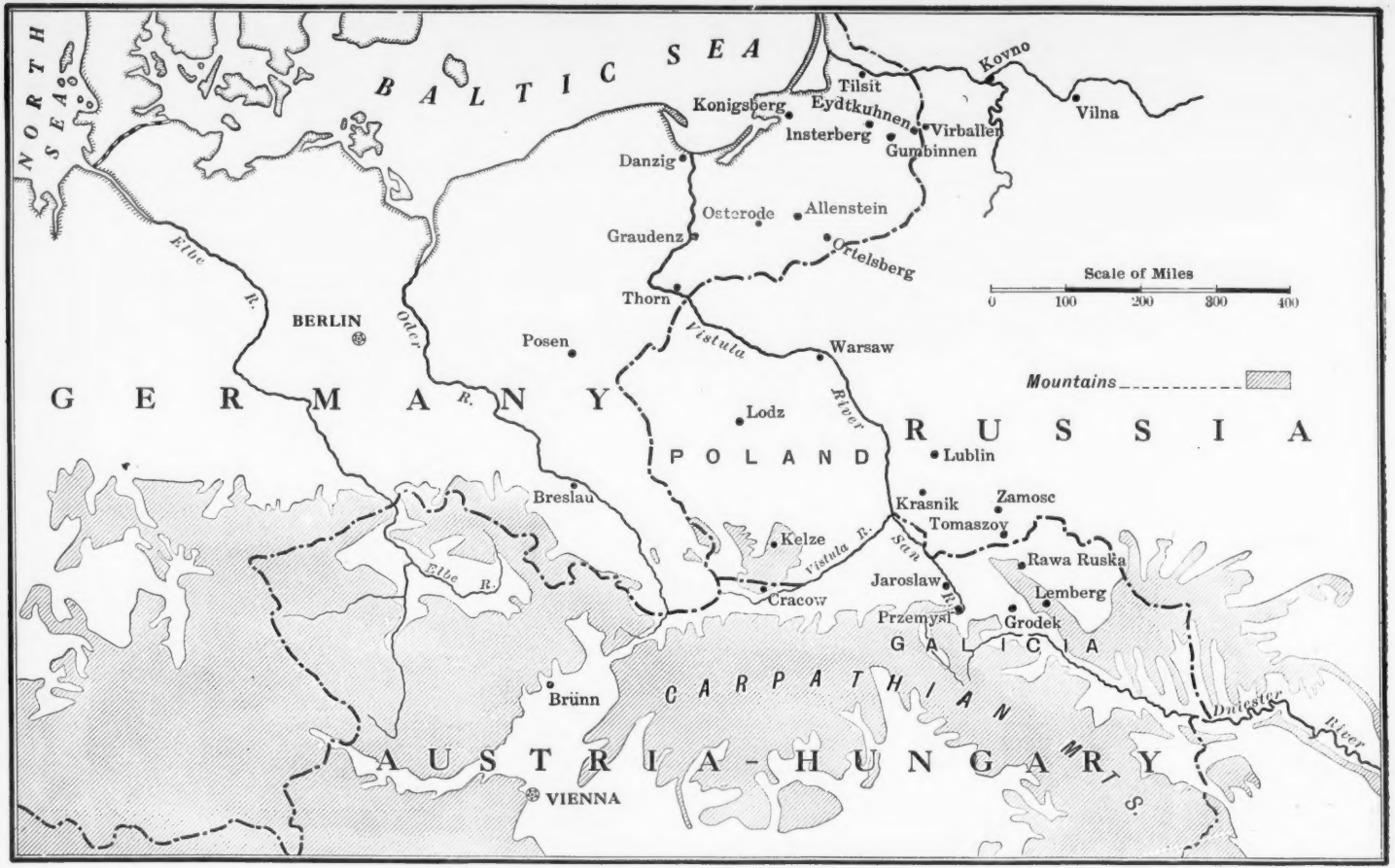
GRAND DUKE NIKOLAS

THE STRONGEST OF THE ROMANOFFS AND COMMANDER IN CHIEF OF THE RUSSIAN ARMIES, WHO HAS LED THE REFORM OF THE RUSSIAN ARMY SINCE THE MANCHURIAN WAR

GENERAL VON AUFFENBERG (RIGHT)

IN SUPREME COMMAND OF THE AUSTRIAN FORCES WHEN THEY FOUGHT THE RUSSIANS NEAR LEMBERG IN THE (TILL THEN) GREATEST BATTLE IN HISTORY

[See page 24]



HOW THE LAND LIES AGAINST RUSSIA

THE CARPATHIAN MOUNTAINS FORM A NATURAL DEFENCE FOR AUSTRIA AND SO THREATEN THE REAR AND FLANK OF ANY RUSSIAN MOVEMENT AGAINST BERLIN. THAT MOVEMENT CANNOT BE MADE UNTIL AUSTRIA'S ARMY IS ACCOUNTED FOR. IN ATTACKING AUSTRIA THE GREAT PINSK MARSHES NORTH AND EAST OF ZAMOSC DIVIDE THE RUSSIAN LINES OF COMMUNICATION, WHICH IS A SERIOUS DISADVANTAGE. IN THE NORTH ALONG THE BOUNDARY OF EAST PRUSSIA, WHICH ALSO THREATENS THE FLANK OF A RUSSIAN ADVANCE, IS LIKEWISE MARSHY COUNTRY THAT IS

THE RUSH TO PARIS

AN ANALYSIS OF THE CAMPAIGN IN THE WESTERN THEATRE OF WAR FROM THE MOBILIZATION OF THE ARMIES TO THE DISPOSITIONS DURING THE BATTLE OF THE AISNE, OCTOBER 1ST

IN THEIR "rush to Paris" the Germans counted well on their ability to concentrate on the French frontier more rapidly than the French, and thus be able to leave their opponents "at the post," as it were, in this gigantic race. They well knew the difficulties that were to be faced along every part of their frontier, as for years they had literally combed each stone and blade of grass on the hills and along the valleys of their 43-year-old dividing line. In adopting a line of operations for their right wing through Belgium and down the valley of the Oise toward the capital of France they knew full well that not only would the Belgian army with its forts of Liège and Namur practically be added to the French opposition, but also that a violation of the territory of Belgium might bring England to the Continent.

Many difficulties presented themselves in this move, the greatest of which lay in the Ardennes district in the south of Belgium and northern Luxemburg. Several of their army corps would have to march through this district in their advance, because the forts of Liège and Namur could be expected to offer at least some days of resistance to a passage of German troops along the main highways that join them. The Ardennes district is poor agriculturally, sparsely inhabited by a poor population, a place where an army with its thousands of men and horses could not "live off the country." To have moved an army of five corps through this district forty years ago would have been a very difficult undertaking, but to-day, due to automobile transport, this could be successfully accomplished and the army supplied untilit arrived at the French border. As to the rest of Belgium the fortress of Liège could be taken by a "coup de main" and, if unsuccessful in surprise, two army corps with the new siege material might be depended on to accomplish its fall in a couple of weeks at most. After Liège these two corps could operate against the Belgian army and Namur until the former was driven back into Antwerp and the latter was reduced. When this was accomplished these two corps' mission would have been finished and they could be sent to the eastern frontier for operations against the Russians, their places in Belgium being taken by organizations of the landwehr or first reserve, which could act practically as well as the active corps on the defensive, but are not as efficient for offensive operations.

For the French campaign Germany could count on 19 of her active corps assisted by one Austrian corps—the 14th Corps from Innsbruck, which is equipped with mountain artillery and would be especially valuable for work in the Vosges Mountains. These mountains, that form the frontier of the province of Alsace with France, rise to a height of about 4,500 feet, are rugged, wooded, and in many ways remind one of the Alleghany Mountains in the United States. The total number of army corps then available would be 20, to 21 for France. One of the French corps, the 19th, was stationed in Algeria and would need about three weeks' time to arrive on the line in France. Should France be able to effect her concentration before the Germans, on account of unforeseen circumstances, were able to get all their corps, including those in Belgium, on to the French frontier, an offensive might be attempted by the French in the direction of Saarburg. This would bring the French masses against the German left wing and, if successful, would have the effect of bearing it back on to the Ardennes region and possibly throwing a large part of the German army back on the fortress of Metz, where a German disaster might become a possibility.

The Moselle River in this area is easy to defend for a force on the north side, as the hills are just about the proper distance from the river to allow an excellent field of fire for the infantry and excellent positions for the artillery. It was therefore considered that 60,000 men in this area should be able to hold back 200,000. However, in case this was attempted by the French, enough corps must be held within supporting distance of that area between Metz and the Vosges Mountains. South of the Vosges Mountains, that is along the opening east of Belfort, a serious offensive by the French could not be attempted with any assurance of success because they would be hemmed in between the Vosges Mountains and the Rhine River. If they were able to cross the Rhine they would run into the great natural barrier of the Black Forest, a mountainous, rough, and thickly wooded area, in which a large army would be at a terrible disadvantage. If the French attempted anything serious in that quarter it could easily be taken care of, and consequently only a small force need be left in that place. From Verdun to Maubeuge the French have not fortified the frontier to any extent, affording a front of about ninety-five miles through which the German army might cross, without having to reduce any of the permanent lines of intrenched camps. If the French attempted to aid the Belgians by sending troops into that country, they would be playing right into the

THE BOUNDARY OF EAST PRUSSIA, WHICH ALSO THREATENS THE FLANK OF A RUSSIAN ADVANCE, IS LIKEWISE MARSHY COUNTRY THAT IS

Germans' hands, as they could not possibly get as many men there as the Germans could at the beginning of the operations. Neither could the English, whose field army amounted to only three corps, against which at least five German corps would be available. The German concentration would then be so arranged that a concentric advance would be made through the gap in the French fortifications between Maubeuge and Verdun in the direction of Rheims. As this movement progressed the German front would be constantly growing less as it approached that place and therefore would be stronger each day. It would also be directed against the left wing of the French main army and would bring at least ten corps to bear on five French corps in this quarter. Should the French accept battle in this area the Germans would be certain to outnumber them, as they would have either to face a flank and accept battle, or concentrate to the rear.

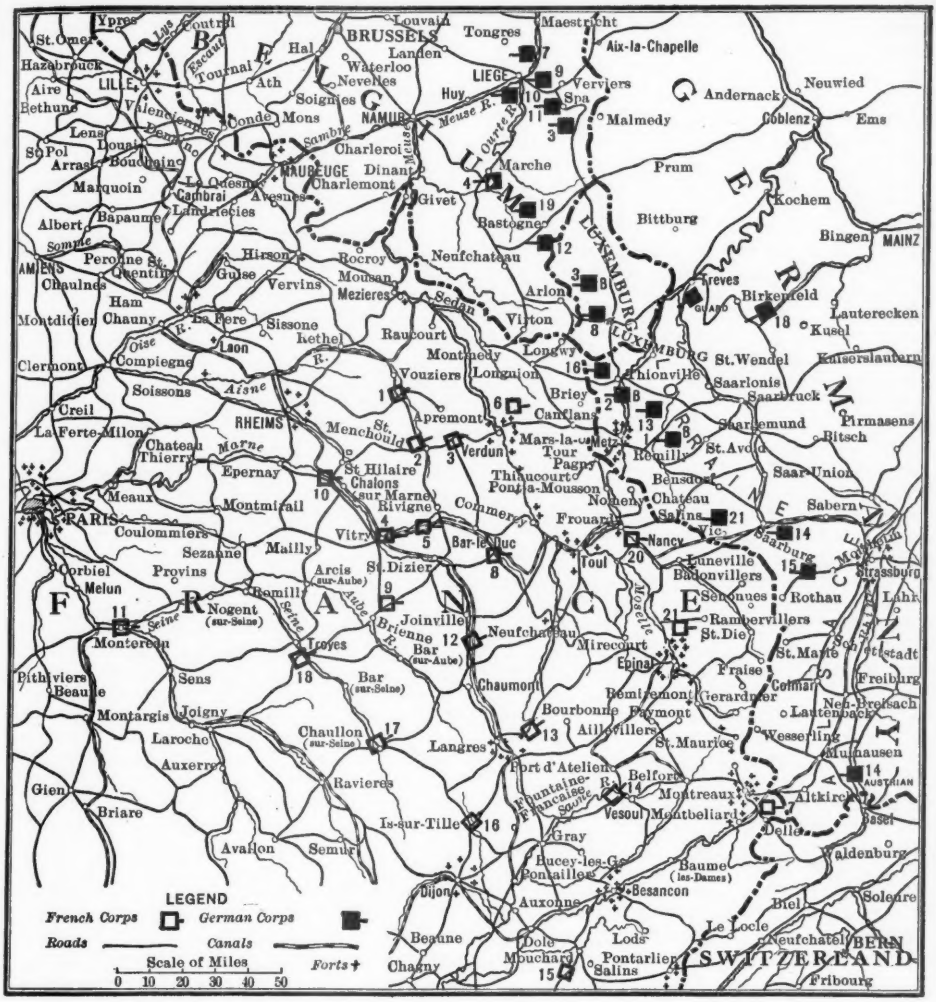
In the case of a concentration to the rear, say behind the line of the Marne or Seine rivers, the whole northern part of France would have to be practically abandoned to the invader. French public opinion probably would demand that the French army fight a battle before this abandonment became a reality. It therefore seemed probable that the French would offer battle at least by the time Rheims were reached. If not, the movement would be continued with all haste so as to break up any concentration they might attempt behind the Marne, and by threatening Paris battle could probably be forced.

The Germans have always wanted to have this great battle take place somewhere in the vicinity of Rheims, as around this place, the champagne country, is found an open, undulating terrain, with vine covered hills, rising for a few hundred feet from the streams flowing into the Aisne River. Good pasturage and fodder for the horses exists, and a good deal of food can be gathered from the country for the support of the army. The distance is only eighty miles to the frontier by roads, which are entirely suited to the movements of troops and transportation, both motor and animal. In a comparatively few days, also, the railroads might be repaired and trains be run direct from the bases on the Rhine. The nearer to the frontier that the great battle could be brought on, the better it would be for the Germans, because if the nearer the sooner, and the nearer the shorter their lines of supply. With Russia attacking on the eastern frontier it was of the greatest importance to obtain a decision at the earliest possible moment against France, as something might happen to the Austrian army that would necessitate its immediate reënforcement by a large number of German corps. Without a destruction of the hostile main army the possession of any point, no matter how important, that does not directly lead to the destruction of the army is of no avail.

The great object in this campaign on the part of Germany was to bring the French army to a decisive combat in the vicinity of Rheims, turn or envelop its left flank, force it back on its frontier forts or on to the Swiss frontier, and destroy either all or a large part of it. As the German army could be concentrated on the frontier in 14 days it could adopt any course or line of operations it desired to begin with, as it was well known that the French army needed 17 days at least for the same operation. The German concentration was therefore carried out as indicated in the map on page 11 and was complete on the fourteenth day of August. The map shows that the centre of gravity of the whole army is in the vicinity of Longwy and that in its forward movement into France the whole force would pivot on Verdun, thence in a bow shape to the line of the river Oise, along which are the direct roads to Paris. Could the French army then be engaged in battle within the first month of the war, this line might continue to pivot on Verdun and, by a great swing of the outstretched arm, describe a semicircle from the Oise in the vicinity of La Fere via Château Thierry, Sèzanne, Brienne, and Chaumont, to Epinal, thereby enclosing the greater part, at least, of the French army. It was one of the boldest strategical conceptions ever attempted.

The right of this mammoth manœuvre was to be covered by the mass of the German cavalry, about 50,000, operating to the west and guarding the rear from any sorties by the Paris garrison, the British, or other hastily gathered troops. A thing which the Germans never exhibited in their manœuvres was the way that their cavalry was to be organized and handled for this campaign. The Germans used no larger organization than the cavalry brigade of about 1,600 sabres, but in this first campaign of the war each one of these brigades was followed by a battalion of infantry with field and machine guns mounted in armored automobiles. This gave about 1,000 infantrymen to each cavalry brigade to act as a pivot of manœuvre, and along the roads they could easily keep up or even run ahead of the cavalry. Each brigade was equipped with radio telegraphic apparatus so that contiguous brigades could be brought to the scene of action whenever necessary. The result of this arrangement was that not only cavalry but large bodies of infantry could be successfully engaged by the German cavalry. Aeroplanes with their motor-driven supply wagons covered the front and could easily discern any large bodies of the enemy in the vicinity. This allowed the cavalry to keep their men well in hand for use in battle. The aeroplane, instead of lowering the value of cavalry, has on the other hand vastly increased its value as a combatant arm. As the French cavalry was neither equipped nor organized in this manner at the outset, in no way could it cope with the German.

The French, in their estimate of the situation, which involved a determination of the direction


BELGIUM
FRANCE
GERMANY
LUXEMBURG
BRUSSELS
LIEGE
NAMUR
MAUBEUGE
PARIS
RHEIMS
Ypres
St. Omer
Hazebrouck
Aire
Bethune
LILLE
Valenciennes
Lens
Douai
Bapaume
Albert
Somme
Peronne
St. Quentin
Chaulnes
Ham
Montdidier
Clermont
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Creil
La Ferte-Milon
Chateau Thierry
Meaux
Coulommiers
Sezanne
Provins
Melun
Montereau
Pithiviers
Beaune-la
Montargis
Joigny
Sens
Larochc
Auxerre
Gien
Briare
Avallon
Semur
Is-sur-Tille
Dijon
Beaune
Chagny
Louvain
Landen
Waterloo
Nevelles
Soignies
Mons
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Ath
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Andernach
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Prum
Kochem
Bittburg
Bingen
MAINZ
Marche
Dinant
Givet
Charlemont
Charleroi
Bastogne
Rocroy
Neufchateau
Hirson
Guise
Vervins
Mousan
Mezieres
Sedan
Arlon
Virton
Montmedy
Longwy
Thionville
Treves
Birkenfeld
Kusel
Lauterecken
Kaiserslautern
St. Wendel
Saarlouis
Saarbruck
Pirmasens
Bitsch
Saargemund
St. Avold
Remilly
Metz
Mars-la-Tour
Pagny
Thiaucourt
Pont-a-Mousson
Nomeny
Chateau Salins
Bensdorf
Saar Union
Sabern
Vic
Nancy
Frouard
Toul
Luneville
Badonvillers
Rothau
Strassburg
Lahr
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Brienne
Ornain R.
Moselle
Saar
Meurthe
Fontaine-Francaise
Ognon
Doubs
Lauch
Ill
Rhine
Danube
Inn
Salzach
Traun
Enns
Mur
Drau
Save
Kulpa
Laibach
Adige
Piave
Tagliamento
Isonzo
Trieste
Fiume
Agram
Essek
Peterwardein
Semlin
Belgrade
Nish
Sofia
Philippopolis
Adrianople
Constantinople
Gallipoli
Dardanelles
Smyrna
Aidin
Konia
Adana
Mersina
Alexandretta
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Damascus
Beirut
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Acre
Jaffa
Gaza
Suez
Cairo
Alexandria
Port Said
Ismailia
Tripoli
Benghazi
Derna
Tobruk
Sollum
Bardia
Solum
Mersa Matruh
Sidi Barrani
Fort Capuzzo
Halfaya Pass
Sollum Barracks
Egypt
Libya
Algeria
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Pontevedra
Santiago
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Ribadesella
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Reinosa
Cabezon de la Sal
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Eibar
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San Sebastian
Irun
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Biarritz
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Pau
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Lourdes
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Irun
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Tudela
Logrono
Haro
Miranda de Ebro
Vitoria
Salvatierra
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Mataro
Arenys de Mar
Gerona
Figueras
Port Bou
La Junquera
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La Reole
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Vannes
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Hennebont
Pontivy
Quimperle
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Douarnenez
Audierne
Pont-l'Abbe
Concarneau
Quimperle
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Roscoff
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Lannion
Perros-Guirec
Tregastel
Paimpol
Tréguier
Lézardrieux
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Le Havre
Fécamp
Yvetot
Dieppe
Neufchâtel
Gournay
Forges-les-Eaux
Gisors
Beauvais
Clermont
Creil
Senlis
Chantilly
Pontoise
Meaux
Coulommiers
Provins
Nangis
Fontainebleau
Melun
Corbeil
Etampes
Dourdan
Rambouillet
Versailles
Saint-Germain-en-Laye
Poissy
Mantes
Vernon
Les Andelys
Gaillon
Louviers
Elbeuf
Rouen
Duclair
Caudebec
Lillebonne
Harfleur
Montivilliers
Bolbec
Yvetot
Saint-Valery-en-Caux
Eu
Abbeville
Saint-Riquier
Crécy
Montreuil
Hesdin
Saint-Pol
Frévent
Doullens
Albert
Amiens
Corbie
Péronne
Roye
Montdidier
Compiègne
Noyon
Chauny
Tergnier
La Fère
Laon
Soissons
Villers-Cotterets
Crépy-en-Valois
Senlis
Dammartin
Meaux
Lagny
Torcy
Brie-Comte-Robert
Corbeil
Arpajon
Longjumeau
Palaiseau
Versailles
Saint-Cloud
Suresnes
Puteaux
Courbevoie
Neuilly
Bois de Boulogne
Paris
Vincennes
Saint-Maur
Charenton
Ivry
Bicêtre
Montrouge
Issy
Meudon
Sèvres
Clamart
Chatillon
Bagneux
Sceaux
Antony
Fresnes
Rungis
Choisy-le-Roi
Villeneuve-le-Roi
Villeneuve-Saint-Georges
Boissy-Saint-Léger
Chennevières
Champigny
Nogent-sur-Marne
Le Perreux
Bry-sur-Marne
Joinville-le-Pont
Saint-Maur
Créteil
Maisons-Alfort
Alfortville
Ivry
Gentilly
Arcueil
Cachan
Bourg-la-Reine
Sceaux
Châtenay
Fontenay-aux-Roses
Le Plessis-Robinson
Clamart
Meudon
Bellevue
Sèvres
Saint-Cloud
Garches
Vaucresson
Rueil
Nanterre
Bois de Boulogne
Neuilly
Courbevoie
Puteaux
Suresnes
Saint-Germain-en-Laye
Le Vésinet
Chatou
Croissy
Bougival
Marly-le-Roi
Louveciennes
Saint-Cyr
Versailles
Viroflay
Chaville
Meudon
Issy
Vanves
Malakoff
Montrouge
Bagneux
Sceaux
Antony
Fresnes
Rungis
Choisy-le-Roi
Thiais
Orly

junction of their forces. The French, due to their corps mobilization points being so far removed from this line, could not concentrate their army in this theatre nearly so quickly as the Germans. If they attempted to delay the Germans in Belgium only, about three corps, the first from Lille, the second from Amiens, and the third from Rouen, could be assembled for that purpose within sixteen days after mobilization had been ordered. This inferiority in numbers would expose them to almost certain destruction at the hands of a superior German force. English troops also could not possibly be expected to land on the Continent and take the field within that time. Neither would it be wise to send any considerable force of French cavalry to Belgium, because in the first place they could arrive in time only by forced marches which, together with the combats against superior forces of German cavalry, would tend either to destroy or render them incapable of offensive action for months after. Though the French cavalry might be able to accomplish little in the first stages of the war, in the second stage, if the Germans met a reverse, this arm would be invaluable. The French, then, could not without seriously compromising the whole campaign oppose a German advance through Belgium in that territory.

Furthermore, it seemed improbable that the Germans would use a route through Belgium as a line of operations. In the first place it would be against the principle of strategy that requires an army on the offensive to march with its whole force assembled against the hostile main army. By going through Belgium the Germans would certainly not be going with all their forces against the hostile main army and their forces would be divided by the almost impassable country of the Ardennes district that would effectually prevent any reënforcement from north to south until it had been cleared. The next point was that it would involve a violation of Belgian neutrality, which would bring Belgium's 100,000 troops into the field, which, with their garrisons and fortresses of Liège and Namur, would amount to three army corps. In such a case England also would enter the fray, because England can never if she can help it allow a maritime rival to possess itself of the Belgian coast, which is practically at her back door and from which an actual invasion is by no means an impossibility.

England, with what improvised units she could send to the Continent in addition to her regular army, could be depended on to furnish about 3 army corps. This would be a virtual addition of 6 army corps to the French army. As Germany could bring to bear certainly no more than 20 of her 25 corps, with possibly 1 or 2 Austrian corps or a total of 22 corps, France with the addition of 6 corps would have, with her 21, a total of 27 corps. If Germany had to detach more than 5 corps for duty against the Russians, this disproportion would be still greater.

It therefore seemed improbable that Germany would run the chances of violating Belgian territory and invading along the valley of the Oise River. Next it seemed highly improbable that Germany would invade by way of the Belfort opening or the Vosges Mountains through Alsace province, especially as it was evident that Italy would not join her. If this line of operations were adopted it almost certainly would involve a violation of Swiss neutrality, quite a dangerous undertaking in view of the efficiency of the Swiss army in its mountain home. If an invasion of France by the Belfort gap were unsuccessful, the Germans would be thrown back on the Swiss frontier and destroyed or driven across that frontier. Belgium and the Vosges Mountain region then having been eliminated as possible lines of main advance for the Germans, where between these points would the advance occur?

It was well known that the Germans had completely provided themselves with mobile artillery (the 11.2 inch howitzers) capable of piercing the concrete and armored works on the French frontier. The great number of railroad unloading platforms, about 80 in number, in Lorraine also lent color to the belief that their principal concentration was to be made in that area. These platforms are more than 1,500 feet long and on both sides of the double tracked railroads. In this area, also, immediately around Metz, 120,000 covering troops could be dispatched across the border against 50,000 for France. These could seize the approaches to any points desired in that vicinity. It therefore seemed probable that the main German attack would be directed somewhere between Verdun and Epinal, *probably straight through the barrier of forts in the vicinity of St. Mihiel*, which lies about midway between Verdun and Toul. If these forts could be reduced in a few days by means of the new siege howitzers, a direct attack could be delivered against the French left wing. This, in all probability, could be accomplished in the first few days after mobilization had been ordered, because if the Germans intended to adopt this line of operations they would be certain to make adequate preparations for it. The main French concentration was therefore directed toward the line Bar-le-Duc-Epinal and at the time the German concentration was complete the French still lacked three or four days of finishing theirs.

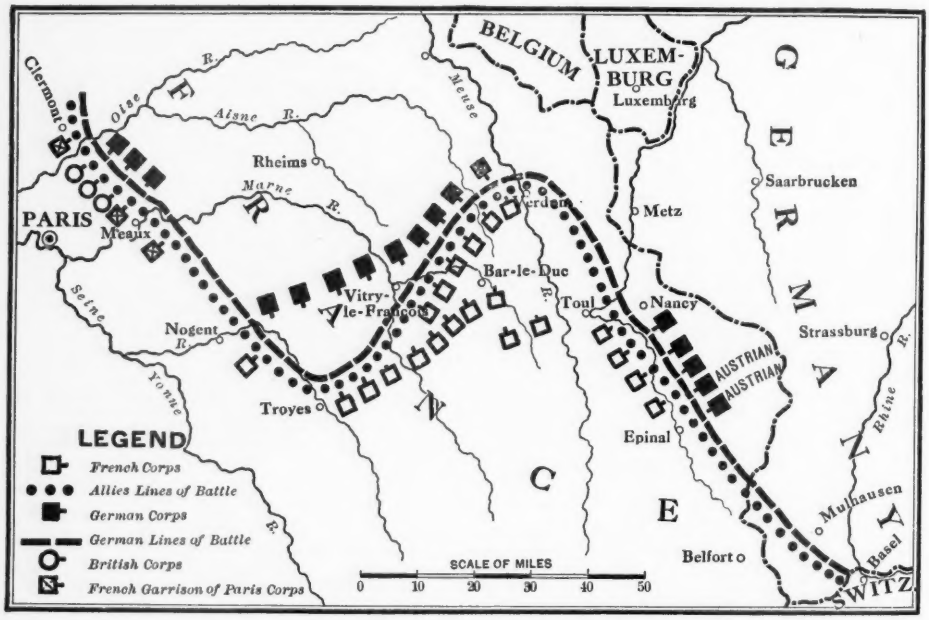
When a concentration of a great army involving more than a million men has been started by railroad, or marching for that matter, it is a most difficult thing to change. All the railroad schedules for the trains, about 26 in number for each army corps, all the supply arrangements, systems of debarcation, and marching schedules have to be changed. If a tie-up or a mistake happens at any one place it may compromise the whole concentration. If a successful and efficiently organized concentration can be made in the proper place and

THE RUSH TO PARIS ON AUGUST 23D

THE FRENCH CONCENTRATION WAS COMPLETED ON AUGUST 17TH AND AN OFFENSIVE MOVEMENT ATTEMPTED IN THE DIRECTION OF SAARBURG, LORRAINE. THIS ENCOUNTERED SUPERIOR GERMAN FORCES AND WAS THROWN BACK WITH LOSS. THE FRENCH ARMY THEN HAD EITHER TO CHANGE FRONT TO THE NORTHWEST TO MEET THE MAIN GERMAN ATTACK OR CONCENTRATE TO THE REAR SOUTH OF THE MARNE RIVER. THE LATTER WAS DECIDED ON AS IT WAS THE ONLY SAFE COURSE OF ACTION. TO DELAY THE GERMAN ADVANCE 5 FRENCH CORPS WERE PLACED ALONG THE LINE OF THE AISNE RIVER. THIS DIAGRAM INDICATES THE APPROXIMATE POSITIONS OF THE FRENCH ARMY CORPS WHEN THEY WERE WITHDRAWING FROM LORRAINE, DELAYING THE GERMANS ALONG THE AISNE RIVER, AND BEGINNING THEIR CONCENTRATION SOUTH OF THE MARNE RIVER. THE FRENCH ARMY WAS IN A PRECARIOUS POSITION. THE "FATE OF FRANCE" HINGED ON THE DELAYING OF ACTION ALONG THE AISNE RIVER. THE FRENCH DELAYING CORPS WERE ATTACKED AT ALL POINTS BY SUPERIOR GERMAN FORCES. AT THIS TIME IT WOULD HAVE BEEN SUICIDAL FOR THE FRENCH TO ATTEMPT TO MAKE A LARGE DETACHMENT FOR THE PURPOSE OF HELPING THE BELGIANS AND THE BRITISH. THEIR DEPLOYMENT (ON THE LINE BAR-LE-DUC-ÉPINAL) WAS A WRONG SOLUTION OF THEIR MILITARY PROBLEM, AND THE RESULT OF DESIRING TO TAKE THE OFFENSIVE PREMATURELY. THE BRITISH (3 ARMY CORPS) HAD PROCEEDED FROM THEIR BASE TO THE NORTH OF MAUBEUGE. THEY WERE ATTACKED IN THE VICINITY OF MONS BY SUPERIOR GERMAN FORCES, DRIVEN BACK WITH GREAT LOSS (ABOUT 30 PER CENT. IN KILLED, WOUNDED, AND MISSING), AND IN FIVE DAYS' FIGHTING THEIR COMMUNICATIONS WITH HAVRE WERE CUT AND THEY FOUND SHELTER UNDER THE GUNS OF THE FRENCH INTRENCHED CAMP OF LA FÈRE, 60 MILES FROM MONS. EXCELLENT HANDLING ALONE PREVENTED THEIR UTTER DESTRUCTION. BELGIUM HAD BEEN CLEARED BY THE GERMANS OF LARGE HOSTILE BELGIAN FORCES. THOSE IN ANTWERP ALONE REMAINED AT ALL FORMIDABLE AND AMOUNTED TO ABOUT 100,000 MEN CAPABLE OF OFFENSIVE ACTION. THIS RELEASED TWO GERMAN ARMY CORPS FOR DUTY IN EAST PRUSSIA. THEIR PLACES IN BELGIUM WERE TAKEN BY RESERVE CORPS

the troops with all their supply arrangements can move forward to battle, one of the most difficult military operations incident to a campaign has been accomplished. As the French

concentration proceeded it became evident that the Germans were moving a considerable part of their army through Belgium and Luxemburg. This led to the inference that their lines must be weakly held in Lorraine. An offensive move by the French was therefore started in the direction of Saarburg with five corps in the advanced



THE OPPOSING ARMIES ON SEPTEMBER 7TH

WHEN IT BECAME EVIDENT THAT THE FRENCH HAD DECIDED ON A CONCENTRATION TO THE SOUTH OF THE MARNE R'VER AND A REFUSAL TO ACCEPT A GENERAL BATTLE IN THE VICINITY OF RHEIMS OR BETWEEN THAT PLACE AND VERDUN, THE GERMANS DETACHED 3 MORE ARMY CORPS AND SENT THEM TO THEIR EASTERN FRONTIER FOR DUTY AGAINST THE RUSSIANS. AT ABOUT THIS TIME ALSO 2 AUSTRIAN ARMY CORPS THAT WERE ACTING WITH 3 GERMAN ARMY CORPS IN AN OFFENSIVE MOVEMENT THROUGH THE GAP BETWEEN TOUL AND EPINAL WERE WITHDRAWN FOR SERVICE WITH THE AUSTRIAN MAIN ARMY. THE GARRISON OF PARIS HAD BEEN THOROUGHLY ORGANIZED BY THE FRENCH. THIS, WITH SOME INDEPENDENT ORGANIZATIONS WHICH HAD BEEN GATHERED TOGETHER, AMOUNTED TO ABOUT 3 ARMY CORPS FOR OFFENSIVE PURPOSES. THE 19TH FRENCH CORPS HAD ARRIVED FROM ALGERIA. THE TOTAL NUMBER OF ARMY CORPS WAS 24: 21 FRENCH AND 3 BRITISH, IN ADDITION TO THE TROOPS OF THE GARRISON OF PARIS. DURING THE PREVIOUS TWO WEEKS 10 FRENCH AND THE BRITISH CORPS HAD BEEN BADLY MAULED. ON SEPTEMBER 7TH THE ALLIES OUTNUMBERED THE GERMANS GREATLY. THE FRENCH CONCENTRATION SOUTH OF THE MARNE WAS COMPLETE AND THEY BEGAN TO MOVE FORWARD, ESPECIALLY AS THE GERMAN ARMY WAS DRAWN FAR DOWN INTO FRANCE AND IN A BAD AREA FOR OFFERING DECISIVE BATTLE. THE GERMANS THEREFORE DECIDED TO WITHDRAW. TO ACCOMPLISH THIS AND INFLICT AS MUCH LOSS AS POSSIBLE ON THE ALLIES, 3 CORPS WERE LEFT TO OPPOSE THE ALLIES IN FRONT OF PARIS AND THE REST CONCENTRATED AGAINST THE FRENCH MAIN ARMY IN THE VICINITY OF VITRY-LE-FRANÇOIS. THIS WAS THE FIRST TIME THAT THE TWO MAIN ARMIES HAD BEEN IN CONTACT, AND WAS THE HIGH WATER MARK OF THE GERMAN INVASION IN SEPTEMBER. GERMAN CAVALRY PATROLS HAD PENETRATED AS FAR SOUTH AS NOGENT AND TROYES

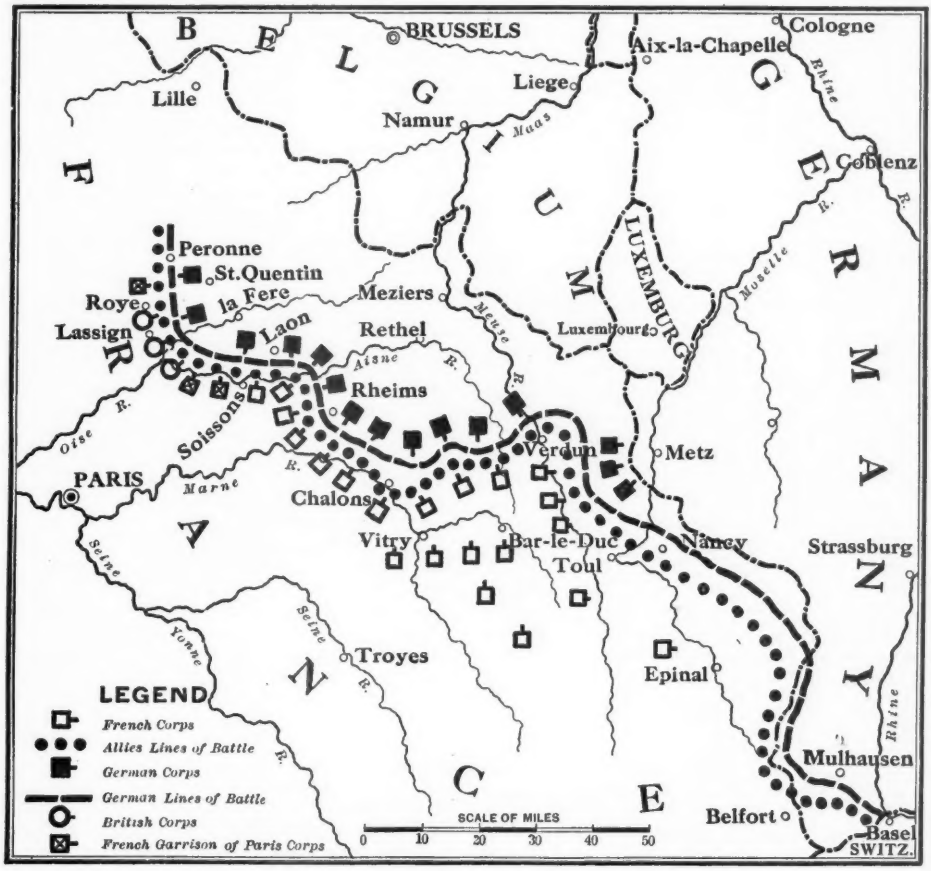
body. If an offensive move in this direction were successful the German communications with their bases on the Rhine would be threatened, they would have to change front to their left flank to meet the French onslaught, and as many of their corps were so far distant in Belgium a great victory might be obtained.

These were some of the considerations that led the French to move into Lorraine in addition to the political aspects of the situation which played to the French imagination in gaining back their "lost province." An offensive to be successful must be stronger than the opposition at the critical points, must be well sustained and constantly grow stronger as it progresses until the great decision that is being striven for is obtained.

The French started their invasion of Lorraine with great spirit and had made some progress during the second week in August with their advanced group when they were pounced on by the Germans in superior numbers and thrown back with loss. In fact very good handling was required to extricate this force. (The map on page 13 illustrates the withdrawal of this force during the latter part of August.) Some small offensive moves were

also made into Alsace and along the Vosges Mountains at this same time. These were in the nature of demonstrations and were thrown back.

While these things were happening the German right wing through Belgium was making phenomenal progress, was scattering the Belgian resistance, and reducing the Belgian fortifications in a marvelously short time. The British expeditionary force of three corps was rushed up with all possible speed to the north of Valenciennes and sent to the front. On August 23d they came in contact with the Germans at Mons. The Germans were well informed of the British moves and had concentrated a superior force at that place to attack them. The British commander, General French, was not aware of the great strength of the enemy opposed to him until told by General Joffre, the generalissimo of the French army. General French's left flank was enveloped by the Germans, his communications with Havre cut by the German cavalry, and his force only extricated itself by a precipitate retreat on La



THE BATTLE LINE ON SEPTEMBER 14TH

FROM SEPTEMBER 7TH TO 14TH THE GERMANS FELL BACK, CAUTIOUSLY FOLLOWED BY THE FRENCH MAIN ARMY, WHICH TOOK NO CHANCES OF OBTAINING A BRILLIANT VICTORY BUT AT THE SAME TIME RAN NO RISK OF A SEVERE DEFEAT. A DEFENSIVE POSITION MEANWHILE HAD BEEN ORGANIZED BY THE GERMANS ALONG THE GENERAL LINE NORTH OF VERDUN-CHÂLONS-RHEIMS-LAON-ST. QUENTIN-PÉRONNE, WITH DEFENSES ALSO ALONG THE AISNE RIVER. THE GERMAN POSITIONS, VERY HEAVILY INTRENCHED, WERE ATTACKED BY THE ALLIES BETWEEN SEPTEMBER 14TH AND OCTOBER 1ST, WITH NO EFFECT. AN OFFENSIVE MOVEMENT BY THE ALLIES IN THE WEST IN THE DIRECTION OF ST. QUENTIN WOULD IF SUCCESSFUL RESULT IN DRIVING THE GERMAN RIGHT BACK ON ITS COMMUNICATIONS AND WOULD NOT DESTROY THE MAIN ARMY. AN OFFENSIVE MOVEMENT FROM VERDUN TOWARD MÉZIÈRS BY THE FRENCH WOULD IF SUCCESSFUL CUT THE GERMAN COMMUNICATIONS. IT WOULD ALSO EXPOSE THE FRENCH MAIN ARMY'S COMMUNICATIONS. DURING THE LAST OF SEPTEMBER A STRONG GERMAN COLUMN BEGAN A MOVEMENT AGAINST THE FRENCH LINE OF FORTS BETWEEN VERDUN AND TOUL. SUCH A MOVEMENT PUSHED THROUGH BY THE GERMANS WOULD FORCE THE FRENCH AGAIN TO CHANGE FRONT

Fère, which they reached about four days later and there found protection under the guns of the fortress. During this retreat and incidental battles the British loss amounted to about 30 per cent. of the numbers engaged. Expert handling alone saved the British army. (See map on page 13.)

The German advance was so rapid that the French, if they persisted in an invasion of Lorraine, were sure to be taken in flank and rear by the Germans coming from the northwest. It became imperative either to change front to the northwest to meet the German army or to concentrate to the rear. A change of front is a most perilous feat to accomplish in the face of the enemy. The lines of communication are very apt to cross, as each large army subdivision is assigned certain roads over which its supplies are transported. An army requires an average of more than ten pounds per day per man in food, ammunition, equipment, and forage. It can be seen, then, that for 1,000,000 men at least 5,000 tons of supplies per day must be brought up. If these fail, especially with a large army, disaster is almost sure to follow. Should the French have been decisively defeated in the latter part of August, the fate of France would have been sealed. The Germans counted on the French offering battle anyway, to prevent their territory being used as the battle ground any more than they could help. They therefore considered that a decisive battle would take place somewhere in the vicinity of Rheims and their movement had been designed so as to bring their maximum force to bear in that vicinity and by a great swinging movement of their right wing enclose the French army in its grip. To delay the German advance 5 French corps had been thrown along the line of the Aisne River and were hotly engaged with superior forces of Germans. (See map, page 13.)

The question for the French, then, was whether to change front to their left flank or concentrate to the rear. The latter was the only solution which offered the best chances for saving their army and possibly throwing back the German invasion for a distance at least. The concentration to the rear involved giving up further French territory to the invader and was strongly opposed by the political part of the Government. *It is quite probable that General Kitchener's visit to France at that time had a strong influence on the French decision to concentrate to the rear. This incidentally involved a change of the French ministry and possibly the saving of France from defeat.* It was the only sound military policy to adopt and the more remarkable on account of the French temperament, which usually is anxious to accept battle at any time or place where the integrity of French territory is involved.

A concentration was therefore ordered on the line Nogent-St. Dizier-Verdun (the beginning of this is shown in the map on page 13). The Germans became aware that they were being opposed merely by a delaying force and considered it possible that the French concentration was being made immediately behind the river Marne. They therefore made the utmost speed to get there before this had been accomplished fully by the French. During this time the German right wing was marching straight down the roads along the river Oise in the direction of Paris and apparently threatening that place. The French people, ignorant of the real strategy of the French army and because the German advance seemed irresistible, grew very pessimistic and fully expected to see Paris soon besieged by the invading hosts. They did not consider that the objective of any military campaign must have for its immediate object the destruction of the enemy's main army before the investment of a great stronghold is begun. If Paris had been invested by the Germans without first having destroyed the French main army, even if they had entered it, no good could have resulted and so great a portion of their troops would have been diverted to this operation that their other forces would have been so weakened as to make their defeat by the French field army almost certain.

The object of the Germans is to destroy the French main army, and as long as that remains intact Paris is safe. By threatening Paris by an apparently irresistible advance the Germans threw many of the French people into a panic, and the constant retreating of the French army also had a very depressing effect on its morale. Both of these results were advantages to the Germans. During this time the garrison of Paris, about 165,000 men, was placed on a complete war footing. All the detached organizations from the southern part of France which it was possible to get hold of were hurried to Paris and the British army continued operating in that vicinity. The Germans were well aware of these preparations and when they crossed the Marne River around Eperney and St. Hilaire and did not find the French army there it became evident that they had concentrated so far to the south that an envelopment of the French left wing was an impossibility. A frontal attack alone could be made, as the Fortress of Paris was on the German right and the intrenched lines from Toul to Epinal on their left. A defeat of the French on their line of concentration would only drive them back on their communications and offer nothing decisive. If the Germans on the other hand suffered defeat they would stand an excellent chance of being cut off either from the west (Paris) or the east (Verdun).

Under the circumstances of the present German campaign, the chance of obtaining a great decision over France in the first six weeks of the war had passed. The Russians were getting down into the southern part of Poland, where the German strategy had hoped to be able to confine them with their main army released from France at this time, and operating to the south from East Prussia against the Russian rear. Three more corps then were sent to

East Prussia from France, in order to give them ten corps on the Russian frontier and enable them to take the offensive. Their places in France were taken by reservists. The Germans had only 15 first line army corps left in France. This disposition was made because they could not hope to gain any decision of moment south of Paris. With the force in France, however, they could withdraw and probably entice the main French army to follow them to the country north of Rheims, which is admirably adapted to the holding of a great battle. The forward movement was continued, however, until September 7th by the Germans. A day or two before that time the great mass of their cavalry, which had been operating in front of and to the west of Paris, was moved to the southeast of Paris to cover the German right flank. Its patrols penetrated to the outskirts of Troyes, Romilly, and Nogent, all on the Seine River. Three corps were detailed to hold off the troops operating in front of Paris and the British. The command of these was left with General Von Kluck, who had made the very rapid march down the Oise River. The positions of the French and German armies on September 7th are indicated in the map on page 14. The Germans were greatly outnumbered then at all points, and it *was the first time since the beginning of the campaign that the two main armies had been in contact.*

To cover their own retreat the Germans concentrated against the French centre at Vitry-le-François, as soon as the French made a forward move. In the meantime an intrenched position of great strength had been prepared by the Germans on the line approximately Péronne-La Fère-Rheims-Châlons-north of Verdun and back of this along the Aisne River. To this line the Germans fell back from the 7th to the 14th of September. They were followed by the main French army and the English on the west. The main French army did not attempt to gain a brilliant victory and at the same time run the risk of a severe defeat by pushing its right wing against the German communications north of Verdun. It was well understood by the French that a delay in a decisive battle was of more advantage to them than to the Germans, as the Russians operating in Poland must be taken care of sooner or later.

From the middle of September until the 1st of October the French allied and German armies faced each other on this line. Fighting continued during all this period with more or less severity. Nothing decisive for either side transpired. The general positions of the main armies are indicated in the map on page 15. On the extreme French left, that is in front of St. Quentin, the Allies assembled all the improvised field troops such as the garrison of Paris organizations, colonial troops from Africa, the British expeditionary force, and, during the last part of September, the British Indian troops. This whole force amounted to about 500,000 men of all classes. A movement in this direction could only result in *driving back the Germans on their lines of communication and forcing them to carry supplies and reënforcements on one less road but not cutting them off.* The movement if successful could result in clearing France of German troops, but would not cut the German communications.

A move north of Verdun by the French would on the other hand cut the German communications and render the position of their army very dangerous. The operations of the Allies on the German right are therefore designed to draw as much of their army in that direction as possible so that a move north of Verdun can be made by the French main army should opportunity offer. To guard against this the Germans are holding a strong force along the Meuse with its centre opposite St. Mihiel. The menace of this keeps the French back from operations with their main army north of Verdun. It is through here that a German offensive move may at any time develop.

German siege operations have been initiated against Antwerp, Belgium. Should this place be captured it would afford a naval and aërial base for operations against England and remove a constant menace to the German communications through Belgium from Cologne and Aix-la-Chapelle. *Its investment by the Germans indicates that they expect a long war.*

THE RUSSIAN CAMPAIGN

HOW GERMANY AND AUSTRIA HAVE ALL THE ADVANTAGE OF POSITION—THE LARGEST BATTLE IN THE WORLD UP TO ITS TIME—THE BOLDNESS OF THE RUSSIAN MOVES

DURING the initial stages of land warfare, the existence of rail-power is a vital ingredient in effective mobilization, concentration, and in getting the strategic jump on the enemy. Now Germany has the most highly developed railroad system for the extent of her territory of any nation in the world. Not only is every point on her French frontier covered by railroads but all points on her Russian frontier as well. Her total mileage is about 35,000. Russia's, with all its vast territory, is also 35,000 miles. Austria has 25,000 miles of railroads, a great deal of which is along her

northern frontier, giving her a very complete net of transportation in that part. It is in her railroad system that the great material strength of Germany both for offense and defense is found. There are two distinct lines of railroad running into East Prussia with innumerable branches leading to all points of the East Prussian frontier. (It was along these that the German corps were brought from Belgium in the latter part of August, a movement that caused the Russian defeat at Allenstein, East Prussia.) There are two, and in some places three, main railroad lines running all around the frontier by Breslau, Posen, and Thorn, all of which have a great many connections with central Germany. Breslau has seven different railroads running out of it, and the frontier between Breslau and Cracow is a perfect network of railroads. A rapid concentration at any point on the frontier is, therefore, easy for Germany. There are only four lines of railroad actually crossing the frontier from East Prussia into Russia and one from Ratibor, Germany on the Austrian frontier, to Warsaw, Poland.

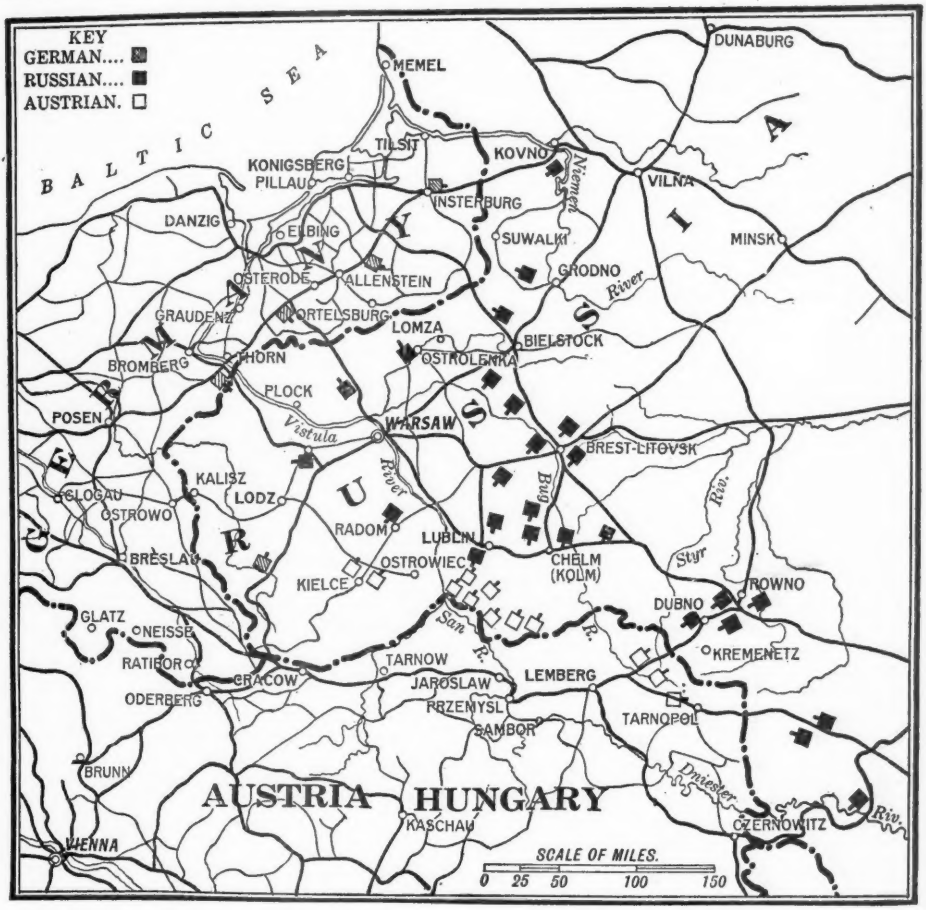
The Russian system of railroads is very inferior to the German or, for that matter, to the Austrian. Many of the roads have only single lines of track, their construction is inferior, stations wide apart, and speed slower. They cannot carry the same amount of traffic as those of their opponents. The gauge of the German and Austrian railroads is the same—4 feet 8½ inches—so that rolling stock can be used interchangeably. The Russian gauge is 5 feet, so that their cars and engines cannot be used in Germany or Austria. The Germans have devised a method, however, by which it is possible to extend the distance between their car wheels along the axles so as to make the altered wheel base fit the Russian gauge, in case of a German invasion of Russia.

The Russian military machine had been vastly improved by 1910 and by 1914 it had attained a rating in efficiency not far below, if not equal to, that of its neighbors on the west. Russia's active army at the outbreak of hostilities consisted of 36 army corps. (A Russian army corps, with its reserve division is, roughly, 50,000 men.) Of this number 29 were in European Russia and 7 in Asia. It has always been a question how many army corps Russia could assemble in Poland for an offensive campaign against Austria and Germany, because so much depends on Russia's internal conditions, the possible participation of the Balkan States, and the conditions in the Caucasus, Persia, Turkestan, and the Far East. Under any conditions all her corps could not be brought to Poland, notably those in the Caucasus where, in addition to a possible menace from Turkey, the political conditions are always unsettled. This is also the case along the Turkestan frontier, and it would probably be impossible to withdraw the Russian Amur garrisons for duty in Europe on account of the ever present danger of complications in the Far East. On the outbreak of war, of her 29 army corps stationed in Europe all except those in the Caucasus (3 in number) could, under favorable conditions, be made available at once, and 2 from the Irkutsk district of Asia, or a total of 28. Russia's mobilization arrangements had been so completed that, generally speaking, all her European corps could be mobilized at their home stations in from 10 to 12 days. Those near the frontier could then immediately embark on the campaign. The concentration of the 26 corps in Poland would take from 20 to 25 days before it would be ready to begin active hostilities, about ten days more being necessary for the two corps from the Irkutsk district of Russia to reach the theatre of operations.

All Russia's military preparations and probably her scheme of concentration down to exact details, and all the principal methods to be adopted in them, were well known by Germany and Austria before the beginning of hostilities. The systems of espionage developed by the European Powers, particularly Germany, are extremely efficient, and general plans involving a concentration are very difficult to keep secret. By studies made by the general staffs the day on which certain corps are able to arrive at their place of debarcation from the railroads can be exactly determined. It was quite evident from the beginning that, during the first two months of the war at least, Germany would confine her whole attention to the destruction of the French army, as that was her most dangerous enemy, and that only sufficient corps would be left on the Russian frontier to act as covering troops along her borders to delay any Russian advance. From 5 to 6 army corps, then, would be left in German East Prussia and on the western Polish frontier. The whole army of Austria except a small part left to oppose the Servians and Montenegrins could surely be counted on to oppose the Russian advance, at least 14 of Austria's 16 army corps, or about 1,000,000 men. In actual army corps Germany and Austria would have about 18 or 20 corps available to Russia's 26 to 28. The strategical problem confronting Russia in an offensive move against Austria and Germany was infinitely more complicated than that confronting France and Germany in their campaigns. Germany is Russia's most dangerous foe, but to get at Germany it was necessary practically to destroy Austria's army first.

The reason for this is to be found in the peculiar position of the German and Austrian frontiers from a strategical standpoint, and a short description of these and the terrain of Poland is necessary to form an understanding of the Russian campaign. In fact a knowledge of the topography of this area is essential to the formation of any connected idea as to the military operations that have been taking place in this theatre.

To begin with, the frontier of East Germany (the Russian frontier) is entirely without mountains or even hills. Their place is taken by well marked rivers with broad, marshy borders. The rivers Oder, Warthe, Vistula, German Silesia southeast of Breslau is protected by the Sudetic Mountains on the Austrian frontier and the great forests of Poland. It is a very rich country in industries, mines, and agriculture. The main lines of railroad and



THE RUSSIAN AND AUSTRIAN CONCENTRATION, AUGUST 21ST

ON AUGUST 21ST THE RUSSIAN CONCENTRATION WAS COMPLETED. IT CONSISTED OF 26 ARMY CORPS (7 IN EASTERN GALICIA, 5 FROM THE KIEV DISTRICT AND 2 FROM THE ODESSA DISTRICT), 19 IN POLAND (4 FROM THE VILNA DISTRICT, 4 FROM THE WARSAW DISTRICT, 4 FROM THE ST. PETERSBURG DISTRICT, 5 FROM THE MOSCOW DISTRICT, AND 2 FROM THE KASAN DISTRICT). THE VILNA AND WARSAW CORPS ACTED AS COVERING CORPS AND IMMEDIATELY TOOK THE OFFENSIVE UPON THEIR MOBILIZATION, WHICH WAS COMPLETE ON AUGUST 10TH. THE AUSTRIAN CONCENTRATION OF 12 CORPS ON THE RUSSIAN FRONTIER WAS COMPLETE ON THE 10TH OF AUGUST (OF THE AUSTRIAN 16 CORPS, 2 WERE LEFT FACING THE SERVIANS AND 2 WERE ON THE FRENCH FRONTIER). THE OFFENSIVE WAS TAKEN BY THE AUSTRIANS IN POLAND AND EAST OF LEMBURG AT THAT TIME. THE GERMANS LEFT 5 CORPS ON THEIR RUSSIAN FRONTIER TO DELAY ANY RUSSIAN ADVANCE INTO EAST PRUSSIA. RUSSIAN COVERING TROOPS, PRINCIPALLY CAVALRY, WERE IN CONTACT PRACTICALLY FROM AUGUST 1ST ALL ALONG THE FRONTIERS WITH GERMAN AND AUSTRIAN COVERING TROOPS

Pregel, and Niemen, all run northwest or north across Germany, and form successive obstacles to the advance of Russian armies from the east. Russian Poland, extending for about 200 miles from east to west, is enclosed on the north by East Prussia and on the south by Austria. On the other hand, the position of roads connecting eastern and western Europe pass through it, including especially the routes between Bohemia, Moravia, Galicia, and Poland. In Austria the line of the Carpathian Mountains running inside the Austro-Russian frontier is continued by the Transylvanian Alps to form the Austrian south frontier with

Roumania, so that within her territory at varying distances from her actual Russian frontier, Austria possesses a high and rugged mountain line of great military strength. Not until this mountain line has been crossed by the invader can Austria be seriously menaced. The configuration of the German-Austrian frontier with Poland exposes that part of Russia to invasion from three sides, and menaces any advance westward by Russia through Poland to attack from north and south on its line of communications. With large armies that are dependent on their lines of communication for their existence, a menace to these such as this frontier makes possible is a very serious matter.

The frontiers of both Germany and Austria, where they face Russian territory, contain many strongly intrenched positions at strategical points, covering all main lines of approach. East Prussia, in addition to being defended by artificial works, is intersected with swamps, lakes, and forests, being much like the lake country of Minnesota or Wisconsin in the United States. Russia's German-Austrian frontier is more than 1,000 miles long. All along it is found a flat country abounding in swamps, rivers, marshes, lakes, and forests. The great bogs on the south boundary of Poland, called the Pinsk Marshes, cover a distance of about 250 miles from east to west. They are crossed by only a single line of railroad, that from Kiev to Brest-Litovsk. These marshes from a military standpoint divide this line from north to south into two parts, and render the position of an army fighting in front of them precarious in case of defeat. If driven into them it could find no subsistence and no supplies.

The natural features of defense against Germany are the river Niemen, the Augustow Canal, running north and northwest of Bielstock, the Vistula, Warthe, and Prosna rivers. Against an attack from the Austrian frontier the natural features of defense consist of the rivers Pruth, Dneister, Bug, and Pripet. The great military centre of western Russia is Warsaw, 120 miles from Thorn on the East Prussian frontier. The Warsaw region is heavily intrenched with permanent artificial works. A system of fortified posts exists all along the border. The character of Poland in its topography and climate, its roads and communications, is not unlike the northwestern part of the United States. Russia's problem, then, is most difficult not only on account of the difficulty of supplying a great army in this theatre, but also on account of the configuration of the frontier which makes a Russian invasion of Germany through Poland much like thrusting one's hand into a lion's mouth, East Prussia representing the upper jaw and Austria the lower. Into Poland there are only three main lines of railroad from the interior of Russia; from Petrograd (St. Petersburg), from Moscow, and from Kiev to Brest-Litovsk. In contemplating her campaign it was a prime requisite that all the speed possible be made and that Austria be disposed of before Germany could inflict a decisive defeat on France, as Austria without doubt would be given the duty of keeping the Bear at bay until the arrival of the mighty hunter, Germany.

The theatre of war in Poland is naturally divided from north to south, at the outset at least of an offensive campaign by Russia, by the great Pinsk Marshes. These are the same swamps that Napoleon depended on to cover his right flank from attack in his advance to Moscow a hundred years ago. The area north of the swamps contains practically the whole of Poland, and naturally forms the principal theatre of operations; and Austria's eastern frontier and the Russian provinces of Volhynia and Podolia form the secondary theatre. In this secondary theatre it was necessary for Russia to watch Roumania, which, with its 5 army corps, might cause trouble should she join hands with Germany and Austria. The former appropriation by Russia of the Roumanian province of Bessarabia still rankles in the Roumanian breast.

In the principal theatre of operations, that is Poland, there were before the beginning of hostilities in August, 8 Russian army corps permanently stationed, 4 in the Vilna District and 4 in the Warsaw district. These would be ready to take the offensive on the tenth day of mobilization and could act as covering troops for any concentration on the line Bielstock-Brest-Litovsk. A concentration always has to be made to the rear of the frontier, at a sufficient distance to insure its immunity from interference by the enemy. The various organizations have to be detrained and organized into the grand field units at the line of concentration.

A great point is made by the various European Powers as to the dates on which mobilization was started by each. All European Powers watch each other like hawks to determine the least sign of mobilization by their possible opponents, and rightly. If one Power could get a week's start on another, some important strategical point might be seized which might have the effect of determining the result of the whole campaign. If, for instance, Russia had been allowed to concentrate in Poland, intrench her southern frontier against Austria, and at the outbreak of war seize the German fortress of Thorn and the crossings of the Vistula River, while Germany at the same time was fully occupied with France, the Russians would have been very apt to over-run all of Germany to Berlin before they could be stopped. Mobilization is a complicated and slow process; it takes a certain length of time, and cannot be shortened or the whole machine cannot act together as it should. An initiation of general mobilization by a European Power, therefore, calls for a counter mobilization of the prospective enemy immediately, and almost surely means war.

In the present conflict Austria began a partial mobilization in the first part of July in order to settle her differences with Servia that grew out of the murder of the Austrian crown prince at Sarajevo on June 28th. This was of this short article August 1st may be regarded as the first day of mobilization. This date was the one on which active warlike measures of all kinds were inaugurated by the great combatants.

THE EASTERN THEATRE OF WAR ON AUGUST 27TH

AT THIS TIME THE MAIN RUSSIAN AND AUSTRIAN ARMIES WERE IN CONTACT ON A BATTLE FRONT PRACTICALLY 175 MILES LONG. THE AUSTRIANS HAD SUCCEEDED IN REACHING THE VICINITY OF LUBLIN AND CHELM (KOLM), BUT THEIR RIGHT WING WAS BEING DRIVEN BACK EAST OF LEMBURG. THE TWO AUSTRIAN CORPS ON THE FRENCH FRONTIER HAD BEEN WITHDRAWN AND HAD JOINED THEIR MAIN ARMY, GIVING THEM 14 CORPS TO THE RUSSIANS' 17. THE RUSSIANS HAD TAKEN THE OFFENSIVE AT ALL POINTS. IN EAST PRUSSIA 4 RUSSIAN CORPS WERE DRIVING 2 GERMAN CORPS BEFORE THEM BETWEEN ALLENSTEIN AND GRAUDENZ, WHEN 2 MORE GERMAN CORPS TRANSPORTED FROM BELGIUM APPEARED SUDDENLY ON THE RUSSIAN RIGHT REAR NEAR ALLENSTEIN, DESTROYED 2 RUSSIAN CORPS, AND TOOK 70,000 PRISONERS. THIS HAD THE EFFECT OF CLEARING EAST PRUSSIA OF RUSSIANS

followed by the same process on the part of Russia a few days later. After the middle of July Germany, observing these warlike preparations on the part of her neighbor, followed suit, and was in turn followed by France. In the latter part of July all the European Powers had sharpened their swords and a general mobilization was in progress. For the purposes

The line Bielstock-Brest-Litovsk was the one chosen for the Russian deployment because it is sufficiently removed from the hostile frontiers, is centrally located between the Austrian-German borders, and is well covered from attack especially by the great intrenched camp of Warsaw. In the secondary theatre of operations, that is on the lines converging

on the Austrian city of Lemberg, in Galicia, five Russian army corps, those in the Kiev district, would be available on the tenth day after mobilization had been ordered, and the two from the Odessa district would be available only a couple of days later, giving a total of seven corps. It was thought wise to keep a considerable force of Russian troops in the secondary theatre because, if Austria attempted a serious offensive in that direction, it must be stopped. If continued, it might be able to reach toward Kiev, the left of this invading army being protected by the Pripet swamps, which would threaten the Russian communications with Moscow. This invasion possibly might also be aided by Roumania and even Turkey. If only a delaying action were attempted by Austria in that theatre the eastern part of Galicia could be easily over-run, the city of Lemburg occupied, and the whole Russian army could meet west of the Pripet swamps in Poland. In addition, should Austria attempt an invasion of Poland east of the Vistula River toward Lublin, Poland, the seven Russian corps from the Kiev and Odessa districts could take this force in the right flank.

The beginning of the campaign in the first few days of August saw the whole Austrian-German-Russian frontier veneered with covering troops, principally cavalry, engaged in numberless small combats. Covering operations are of a delaying and reconnoitering nature, so as to insure the uninterrupted assembly of the great armies further to the rear. Wherever and whenever possible, the covering groups take the offensive and cause as much trouble as possible. The Austrian army was ready to take the offensive on the tenth day of August.

To be brief, the decision was to move the bulk of their army north from the triangle formed by the confluence of the Vistula and San rivers toward Lublin. The left wing was to be west of the Vistula and move from Cracow to the northeast in the direction of Ivangorod. This would cover the left of the main movement. In the secondary theatre of operations, the Austrian right wing was to be east of Lemberg and delay any Russian force coming from that direction. The Austrian triangle between the rivers had been prepared with a strategic railway, roads, etc., so as to facilitate this operation. This move on the part of the Austrian army would menace the Russian line of strategical deployment then being carried out in the area Bielstock-Brest-Litovsk, take in flank any advance in the direction of Silesia by the Russians, and have the effect of drawing the weight of the whole Russian army down between the Vistula and Bug rivers facing south and fighting with its front parallel to its communications, or face to a flank. In case of a quick decision being obtained by Germany over France, allowing them to bring their army into East Prussia and start an invasion of Poland toward Bielstock and Brest-Litovsk from East Prussia, the Russian army might be driven south, between the Pripet swamps and the Carpathian Mountains, and either be destroyed or very much shattered. If this came to pass all the remainder of Russia that is north of the Pripet swamps on an east and west line would be open to a German invasion with little or no opposition from large Russian forces.

A single line of railroad runs parallel to the Austrian frontier between the Bug and Vistula rivers at an average distance of about sixty miles. The roads are poor and it is difficult to supply a large army over them. In case Germany failed to obtain a quick decision in France, the Russian army would drive the Austrian army together instead of dispersing it on to the Cracow-Przemysl line in front of the Carpathian Mountains. The offensive was taken up by Austria on the tenth of August when (as shown on page 19) two corps were west of the Vistula, 7 advanced in the direction of Lublin-Chelm (Kolm) or between the Vistula and Bug rivers, and 3 advanced east of Lemburg. By the latter part of August the Austrian centre was in close proximity to the railroad passing through Lublin, and had drawn the whole weight of the Russian army on to itself. The left wing (2 corps) was in the vicinity of Radom, Poland. The right wing was being driven back rapidly by the Russians on Lemberg. On the East Prussian frontier there were 3 German corps, one in front of Königsberg and 2 in the Allenstein-Graudenz district. The first was attacked by 2 Russian corps and driven back on to the defenses of Königsberg, a very strongly intrenched camp. The two in the Allenstein-Graudenz district were being driven back by 4 Russian corps. A German corps at Thorn was confronted by a Russian, and a German corps pushed out from Breslau into Poland also. However, detachments from this force had reached Lodz, Poland, occupying that place and the surrounding territory.

It appeared to the Russians for a time (about the 20th of August) as if a crossing of the Vistula River might be made before the Germans could stop it. This line by way of Thorn is the shortest route to Berlin. While the Russian corps were driving the Germans back in the Allenstein-Graudenz region, the Germans were loading 2 army corps on to their trains in Belgium for service in East Prussia. The Russians meanwhile had over-run a great part of East Prussia. On the 23d of August, 2 German corps, detrained near Allenstein, fell on the Russians' right flank and rear, destroyed 2 Russian corps, and took 70,000 prisoners. The Germans then advanced eastward and cleared East Prussia of Russian troops, since which time, up to October 1st, there have been encounters only along the border until the German offensive was taken up in the direction of Bielstock, which will be mentioned later.

On September 2d, Lemberg was captured by

THE RUSSIAN CAMPAIGN ON OCTOBER 1ST

ON SEPTEMBER 2D LEMBERG WAS CAPTURED BY THE RUSSIANS, AS IN THIS THEATRE OF OPERATIONS 3 AUSTRIAN CORPS WERE OPPOSED BY 6 RUSSIAN CORPS. WITH SOME GAPS IN THE LINES THE RUSSIAN AND AUSTRIAN ARMIES' FRONTS WERE COVERING A DISTANCE OF MORE THAN 175 MILES. MORE THAN A MILLION MEN WERE ENGAGED ON EACH SIDE. THE AUSTRIANS WERE DRIVEN BACK STEADILY WITH CONSIDERABLE LOSS UNTIL BY THE END OF SEPTEMBER THEY HAD TAKEN UP THE LINE OF CRACOW-PRZEMYSL-SAMBOR AND SOUTH ALONG THE CARPATHIAN MOUNTAINS. THE AUSTRIAN MAIN ARMY IS STILL INTACT AND IS NOW ON ITS MAIN DEFENSIVE LINE. THE BUKOWINA DISTRICT OF AUSTRIA HAS BEEN OCCUPIED BY THE RUSSIANS. SINCE THE RUSSIANS HAVE BEEN OPPOSED BY THE CONCENTRATED AUSTRIAN MAIN ARMY THEY HAVE ADVANCED AT THE RATE OF ABOUT 2 MILES A DAY DURING SEPTEMBER. AFTER THE RUSSIAN DEFEAT AT ALLENSTEIN ON AUGUST 27TH, THE GERMANS BEGAN PREPARATIONS FOR AN ADVANCE INTO POLAND FROM EAST PRUSSIA. THIS MOVEMENT IS BASED ON KÖNIGSBERG AND IS DIRECTED TOWARD BREST-LITOVSK WITH THE OBJECT OF CUTTING THE COMMUNICATIONS OF THE RUSSIAN MAIN ARMY. FOR THIS PURPOSE 3 CORPS WERE WITHDRAWN FROM THE ARMY IN FRANCE, GIVING THEM A TOTAL OF 10 ON THE RUSSIAN FRONTIER. THIS OFFENSIVE MOVE WAS BEGUN IN THE MIDDLE OF SEPTEMBER AND BY OCTOBER 1ST HAD REACHED THE NIEMEN RIVER IN THE VICINITY OF GRODNO AND THE LINE NORTH OF GRODNO-BIELSTOCK. IT IS ENCOUNTERING DETERMINED RESISTANCE FROM THE RUSSIANS AND ITS PROGRESS HAS BEEN SLOW. THE RUSSIANS MADE GOOD THE LOSSES SUSTAINED AT ALLENSTEIN BY BRINGING 2 SIBERIAN CORPS FROM THE IRKUTSK DISTRICT OF ASIA

the Russians, who then seriously menaced the Austrian centre, which at that time was engaged in battle with the Russians in practically the whole area between the Vistula and Bug rivers in Poland (see map on page 21). Two army corps of the Austrian army that had been on the French frontier had now joined their central army in Poland, and 2 corps of the Russian army from the Irkutsk district of Asia had arrived, making good their loss in East Prussia. Austria then had 14 corps on the line against Russia while Russia had in line

at its disposal a force about one third larger. The main Russian army was now together west of the Pinsk swamps. Its left rested on the railroad between Lemberg and Przemysl. Its right reached across the Vistula River west of Lublin, the front more than 175 miles long and more than 1,500,000 men of the Russian army facing about 1,000,000 Austrians. Both the Russian and Austrian main armies were together and *the ensuing days witnessed the greatest battle fought in the world's history up to that time* (see map on page 21).

In the great European nations of to-day where the system is such as to cause practically the whole male population of military age to spring to arms in a day, and due to the fact that the populations of this part of the world have increased so greatly in the last century, mammoth armies are the result. The battles of these great hosts are quite different from those of former times, that is the contests of armies comprising 100,000 men or so. These small battles were usually determined in a day, a few days, or at most a week. In the battles of to-day their beginning is marked by many engagements as large as the greatest battles of bygone generations were. These fights gradually merge into one great battle in which all become involved. They cease very much as they began, being broken off by a series of engagements of gradually lessening size. Where frontal attacks are made, such as the Russian attack on the Austrian army developed into, the attacker, even after a victory, is almost as tired as the defender and unable to make a vigorous pursuit.

As a result of this battle and subsequent engagements the Austrians were forced back on to their lines of communication, and by the 20th of August they had taken up the line with their right on Sambor, thence Przemysl-Tarnow, across the Vistula River to Miechow in Poland (page 23). This is a strongly placed line in front of the Carpathian Mountains. The Austrian army was entirely in tact and had made good its losses. This line was held, the Russians confronting it, and fighting, most heavy near Przemysl, was continued until the end of September (page 23).

The Germans, after seeing that the French army had escaped them in the early part of September and that their hope for a quick decision in that theatre could not be realized, detached three more army corps from France and took them to East Prussia. There a force to take the offensive was organized and took the field in the middle of the month (page 23). This operation is designed to move against the Russian communications in the direction of Bielstock and Brest-Litovsk. Should this be successful it would entirely cut off the main Russian army from its bases of supply and enclose it between the German and Austrian forces. The German column at this time was not strong enough to accomplish this thing, and the state of the roads and country at this period of the year in Poland made movements by a large force very slow.

The Russians had resisted this advance successfully, up to the 1st of October. The German offensive, however, had had the effect of relieving the pressure on the Austrian front by making the Russians detach troops for stopping this German move with certainty.

It can readily be seen how the configuration of the German-Austrian frontier lends itself to strategical combinations which make it very difficult for Russia to invade either Germany or Austria. By measuring on the map it will be seen how slow the Russian movement has been as a result. The Russian main army was now approaching Silesia and the Germans were preparing a strong force in that area based on Breslau to act in combination with the Austrians for fighting a decisive battle with the Russians northwest of Cracow. As the Germans cover their communications absolutely, should they fail they will fall back and try for other decisions. Should the Russians lose, their communications will be seriously menaced and they may suffer great injury, especially if anything comes of the German offensive from East Prussia toward Bielstock and Brest-Litovsk. The German strategy has aimed to draw Russia on, somewhat as Napoleon did in 1805—the movement which culminated in the battle of Austerlitz—instead of going into Russia and meeting the Bear as he did in his Moscow campaign. At that time what beat Napoleon was, not the fighting of the Russians or the cold of winter, but the fact that he could not keep up his line of communications and supply his army with food, clothing, and ammunition. Railroads and automobile transport have changed military operations at a distance from the base since that time. The Germans and Austrians now have the most favorable strategical position. The Russians have been bold in their strategy and *bold in their grand tactics, in fact more so than in any of their former wars.* The question remains, are they strong enough numerically, and learned enough in a knowledge of the art of war, to win a series of great tactical victories. No matter how unfavorable an army's position may be, if the battles are won, the goal is reached. On the other hand, if an army in an unfavorable strategic position is beaten the results are very apt to prove disastrous. Warsaw is now Russia's greatly advanced base, close to her great army. One foot of the German eagle is planted on French soil and only the other talons can be used against the Bear. The present is Russia's great chance.

"TOMMY ATKINS" IN THE FIELD

HIS CHARACTERISTICS IN THIS AND OTHER WARS

IT IS clear that the British army is living up to its reputation.

"With the English troops we are having great difficulties. They have a queer way of causing losses to the enemy. They make good trenches in which they wait patiently; they carefully measure the range for the rifle fire and they open a truly hellish fire on the unsuspecting cavalry. This is the reason why we had such heavy losses."

So the newspapers report a paragraph in a German letter captured on the Aisne battlefield.

"The Germans," said Field Marshal Sir John French, in one of his reports from the same place, "tried hard to shatter the Allies' nerves by heavy artillery fire." They failed because, as the British commander put it, "the British soldier is a difficult person to impress or depress even by immense shells which detonate with terrific violence and form craters large enough to act as graves for five horses. The shells on impact send up columns of greasy black smoke. On account of this they are conveniently dubbed 'coal boxes,' 'black Marias' or 'Jack Johnsons' by the soldiers."

Nobody who has seen Tommy Atkins on other battlefields can doubt for a moment the justice of this tribute. He is being no more than true to type. The magnitude of the affair does not bother him. He is merely doing on a large scale what he has done a dozen times in Africa and India. All the old stories of his cheerful coolness are being resuscitated. He has fished in Belgian canals, using his bayonet as a rod, with the enemy on the other side of the hill; when almost under fire he has snatched time to shave and has behaved with incongruous levity when quite under fire.

"If it's potting at the Germans that is to the fore, we keep at it as though nothing were happening, and if we're just having a wee bit chat among ourselves we keep at it all the same.

"Last week when I got this wound in my leg it was because I got excited in an argument with wee Geordie Ferris of our company about Queen's Park Rangers and their chances this season.

"One of my chums was hit when he stood up to light a cigarette while the Germans were blazing away at us."

So wrote a wounded Highlander, and in another private letter one finds the following: "We had a whole day of it in the trenches with the Germans firing away at us all the time. It was just after breakfast, and we were without food of any kind until we had what you call afternoon tea in the trenches under shell. The mugs were passed round with the biscuits and bully-beef as best they could by the cooks, but it was hard work getting through then and not getting more than we wanted. Our next-door neighbor, so to speak, got a shrapnel bullet in his tin, and another two doors off had his biscuit shot out of his hand. We are now ready for anything that comes our way, and nothing would suit us better than a good big stand-up fight with the Germans on any ground they please."

There have been the usual stories of men with a football tied to their kit, though it may be doubted whether either the weather or the enemy have given a chance for a repetition of those between-battle football matches which so much astonished the Boers.

But to achieve the right point of view about Tommy Atkins in action it is necessary to realize who he is and how he got there. First and foremost, he is a professional soldier as opposed to a conscript soldier. He is a volunteer in the sense that he has deliberately decided to make war his profession. Patriotic as he is, there was much besides patriotism in his feelings when at the begining of August he turned out and transformed England into an armed camp. He did not disappear into the outer darkness of a superlatively censored war proclaiming to his girl that he would not love her half so much loved he not honor more. The landing in France was to him primarily a privilege, a chance of seeing the "real thing." A Highland regiment was kept waiting at Boulogne. Others passed it for the front. The men could not understand it. "More than half of us," said one, "were in South Africa and we've got the right to do our bit against the Kaiser before we get any older."

"More than half of us were in South Africa." That is one of the greatest secrets of the way in which the English are fighting. Unlike the German army, far more than the French army, they have seen active service. The army did not have to find itself. It has been doing that almost continuously in Egypt, in South Africa, and upon the Indian frontier. Its leaders are virtually all war-trained, from Sir John French down to the average captain and major. Its equipment and behavior are the result of practical experience. The Germans have suffered enormously from mass formation. The Boer War cured the English of that. Had it not been for India it is possible that the British troops might, like the French and Belgians, have still been fighting in the picturesque uniform of the Crimean or Franco-Prussian wars.

As it is, upon the kit of the British soldier is

written much of the character of the British army. It is the neatest in the field. Even the jealously guarded kilts of the Highlander are now dyed an olive-greenish brown—The British khaki is somewhat greener than that used over here, so as to tone with the prevailing green of Europe as compared with the brown of India or Mexico. Whether it is a better protective color than the German iron gray remains to be seen: but it must have struck the red-trousered soldier of France and the picturesquely uniformed soldier of Belgium as being enviably practical.

THE EFFICIENCY OF HIS EQUIPMENT

Among the British there are no flowing trousers, no cumbersome greatcoats. Officers and men in the infantry wear neat breeches and puttees. In the cavalry the officers have leather service boots, i. e., riding boots with a little lacing in front, or else leather leggings. Virtually everybody except the Highlanders, from Field Marshal Sir John French downward, has for headgear a comfortable flat-topped kind of cap. Everything has been sacrificed to comfort and military convenience.

One saw the results of compactness and trained preparedness when the expeditionary force landed at Boulogne, Rouen, and other ports of disembarkation. Competent and confident irresponsibility best fits the atmosphere that surrounded it. Everybody was confident. Everybody was competent, from the shipping companies and their men, who got the whole army across without a single casualty, and the commanders and staff officers who made the arrangements, down to the troopers, who, as soon as their horses were unslung, were busy tending them against the flies of France. As for irresponsibility and cheerfulness, they stick out all over. There was no reasoning why—just a cheerful acceptance of facts—except French tobacco and illegible French newspapers. "The Kaiser 'e's getting a bit thick and it's time 'e was stopped." They let politics go at that and set themselves to study their allies and get their equipment under way.

The bustle and picturesqueness of it all under the clear blue skies of a French August can be imagined; the landing of the field guns; the slinging out of the horses before gaping crowds of French fishermen and old women in their picturesque headgear held back by a thin line of French territorials in their blue and red; Tommy Atkins in his shirt sleeves hauling at the long ropes and dragging ammunition carts upon the flat railway cars; English seamen leaning over the bulwarks of the steamers and leisurely watching the whole business.

And after all the work was over, what endless fraternization between the Allies. What a sizing up of fighting qualities and all the rest of it. "His opinion of his French comrade in arms is very favorable," said an English observer of Tommy Atkins, "but unacademic in expression." "His trousers *are* baggy," said one soldier to me, "but 'e's a good 'un, although he only gets a halfpenny a day and that paid every five days in a crossed cheque." A French comment I heard as Tommy marched along was equally brief and eloquent—the English of it would be, "He sure is a big man." That must have been the common French view. In his tight-fitting kit the average Tommy towered a monument of muscle among the small and wiry "piou-pious" with their baggy trousers and flapping coats. Except that he often, like his officers, has a neat mustache, his replica can be found by the score in any American regiment.

Everything was done to make him at home. Interpreters swarmed about like bees. The men were supplied with a half-sheet typewritten French-English dictionary, providing for most requirements in the way of food, drink, and geographical direction. This was supplemented by the extreme eagerness of every French human being within reach to understand any single English word. Gestures were employed on both sides in filling in the gaps. Tommy might be seen trying to explain "saucepan" with his hands when he wants an egg plain boiled. At least so it has been stated.

But there was no tarrying at the ports of disembarkation. No sooner had the British units got ashore than the rush toward Belgium started. Especially for those who went on foot it was picturesque and lighthearted in the extreme. Flowers were showered upon the soldiers; even the field guns were garlanded. It was carnival, not war. "Have you any English papers got?" cried the Tommies in their mangled French when they halted in the wayside towns. Secrecy and newspapers don't tally, but they got a Gallic welcome instead. They were surrounded and kissed until their cheeks were sore. Their buttons and badges were torn from them as souvenirs.

Gradually the scene changed. As the Belgian frontier was approached and crossed an ominous note of preparation crept in. The rush of motors and lorries became less insistent as they trailed off to supply bases, hospital bases, etc. Apprehension sobered the enthusiasm of the villagers. Bands of frightened refugees from beyond came into sight. The roads became more choked; the coming and going of staff officers grew until gradually it was only the troops, tanned now until the mustaches of some showed almost white against a brick-red skin, who, infantry, cavalry, and artillery alike, drew forward behind a line of the scouting aeroplanes.

HIS COOLNESS IN DANGER

The transition was sudden but to Tommy Atkins not disconcerting. After all, he was not on the Continent junketing but for a shy at the "sausages." It was probably around Mons that the British troops first came into contact with the enemy. A Belgian described them in the London *Times:*

"What impressed me above all were the cool-

ness and dash of the British soldier. His utter indifference to danger, and his general air of 'Don't care,' simply carried me away. At moments of critical danger I have seen him worrying as to when he was to get his cup of tea from his little traveling kitchen.

"I shall never forget the admirable reply given by an English soldier, wounded in the hand, whom I found sitting by the roadside outside Mons wearing an air of consternation. I began to talk to him and asked him if his wound was hurting him. 'It's not that,' he said, with a doleful shake of his head, 'but I'm blessed if I haven't been and lost my pipe in that last charge.' I gave him mine and he was instantly comforted.

A HUMANE FIGHTER

"There is another thing that struck me enormously, and that is the humanity of the British soldier when the fighting is done. In battle he is superb. He puts into the fight all his energy, all his indomitable pluck, and he deals terrible blows at the enemy. But when the battle is over, his first thought is of humanity. The British do not exult over the enemy's losses. They try to snatch from death as many of their enemies as possible. After the battle, the men with whom they have just crossed blades are no longer enemies. They are, in their eyes, just poor wounded fellows. This solicitude, great-hearted as it is, after hard fighting, will always redound to the honor of the British army."

It was hard fighting both at Mons and all along the line of what is called the battle of Charleroi. It was indeed more than hard fighting. It was the beginning of a retreating fight against superior numbers. Writing after a week of it, an English cavalry officer said: "We've had a hell of a time. All by ourselves—the English against a force of Germans five times as big. Our troops have been wonderful. Beat to the world, tired and hungry, they have fought grandly, but they are well worn now. The infantry were grand and the cavalry saved them again and again, covering their retreat in a magnificent manner. I am coming back all right, never fear. Have been in such tight corners, and under such fire, that if I was meant to go I should have gone by now I am sure.

"I have just found my kit. I haven't changed anything for a week or taken off my boots for five days. I look too filthy for words, and have been looking after my own horse, and have ridden one all the time, as I could not get the others."

THE IMPERTURBABLE SCOTCH

Tommy Atkins was equal to it. There was no growling except at having to fall back before an enemy over whom, as Lord Kitchener put it, he felt he had established his personal ascendancy. Take the following impressions of a Highlander: "We of the Argyll and Sutherland Highlanders took up a position facing a wood where the Germans were in strong force. As they emerged our boys met them with a raking rifle fire, which mowed them down. On they came again and again with the same devastating result. Their bullets came whistling around us, but we were indifferent, the marksmanship being very poor. The German infantry carry their rifles under their arms, the butts resting on their hips, and they fire as they march. As the enemy poured out *en masse* into the open it was like the exodus from the Celtic and Rangers Scottish Cup final! Man, if they were only three to one we could go through them easily, but when it comes to ten to one strategy as well as bravery has to be considered."

Imperturbable responsibility carried them through. "The soldiers," said one of their number, "take everything quite coolly. You would have thought they were at a football cup-tie. They were lying in the trenches with German shells flying all around, and they would make bets as to how many Germans they would kill and had killed during the day. They were laughing and joking all the time. A party of the King's Own went into one battle shouting out, 'Early doors this way. Early doors, ninepence!' There were chaps, too, coming in and having their wounds dressed and going off again to have another go at the Germans. Our men fought simply grand. At Landrecies, while our men were lying in the trenches there were a couple of fellows playing marbles with bullets from shrapnel shells which had burst around them.

"The officers are grand. They do everything they can for our comfort. They are always looking after our chaps, and I cannot speak highly enough of them. The men, too, seem pleased to think that they are doing their duty to the officers." Not that it was only a case of dogged defence of guns served till the last man dropped; there were charges of all sorts, of infantry upon infantry, of cavalry upon infantry and cavalry and even upon artillery, notably that of the Ninth Lance near the Belgian border when at great loss a German battery was sabred into silence. Since the battle of the Marne there have been, of course, many more instances of such offensive gallantry.

But it was in the early defensive retreat that Tommy Atkins's fundamental qualities had their best chance of appearing. He has added fresh scrolls of honor to countless regimental flags. He has sealed a fresh compact of mutual trust with his officers and commander-in-chief. To quote one of Tommy Atkins's letters home: "General French is very popular with his men. There's no side about him, and when he passes along he's just as ready to smile on the ordinary Tommy as on the highest officer. He takes a keen interest in our life in the trenches, and we all feel that he's just the man to turn to in trouble, and there's not one of us who wouldn't go through fire and water for him. He never asks the impossible from us, but acts as though he could rely on us to get out of a tight corner."

ENGLAND'S INDIAN ARMY

THE GHOORKAS AND SIKHS—WHAT KIND OF SOLDIERS THEY ARE—THEIR HISTORY —THE STORY OF THE GUIDES

BY

ALFRED OLLIVANT

IT IS an astounding spectacle. For the first time since the Spaniards hurled the Moors out of Europe—and that was long before Columbus sailed for America—brown men and white are at death-grapple on European soil. Somewhere aligned between Berlin and Paris, sandwiched in between the soldiers of France and England, those brown men are to be found grinning behind British steel. They are not men of one race, one color, or one creed. They are drawn from a continent and not from a country; and that continent as various in its inhabitants as is Europe. Among them are Ghoorkas from Nepal—small men of the Mongolian type, big-boned, bow-legged, bullet-headed; looking like bulldogs and not unlike them in tenacity and fighting power. There are the long, athletic Sikhs from the Land of the Five Rivers, who never shave or cut their hair, and who, under Ranjeet Singh, the Lion of the Punjab, carved for themselves an Empire that extended from the Sutlej to the Kabul River. There are proud Rajpoots from Central India, soldiers and gentlemen for a hundred generations. There are keen-faced Pathans from across the Indus, with shaven skulls and Semitic faces. And there are the wild Afridis from over the Border, drawn from their mountain fastnesses to the service of the British Raj by their admiration for the white man who can beat them at their own games of sport and war.

Most are Hindoos; many, Mohammedans; a sprinkling of Christians and Jews; while the Sikhs have a faith of their own. Hereditary enemies, they are bound by one indissoluble bond: they are sons of the same Empire, fighting under the same flag, recognizing the same Sirdar: he who two years ago reviewed their dusty battle-line on the plains of the Ganges beneath the walls of the Palace of Delhi—George, by the Grace of God, Emperor of India and the Dominions Overseas.

Sikhs and Ghoorkas, Afridis and Pathans, Dogras and Punjabis, horse and foot, sappers and miners and pioneers, these are the men of the Indian Army scurrying across 3,000 miles of ocean at the call of the Empire whose glad servants they are.

When that Empire was in trouble fifteen years ago those same soldiers, or their fathers, came to their officers in tears and begged to be allowed to fight her battles: Were they, too, not soldiers of the Queen? Had they not died for her in their thousands in Afghanistan, in the Soudan, in Burmah, in China, on the frontiers of India? Might they not serve her now? Were they not worthy to fight in Africa beside their British comrades, alongside whom they had fought so often before?

Their offer was rejected then. I know not why. It has not been rejected now. Perhaps because for the first time in her history the British Empire is to-day putting forth her whole strength, so slowly gathered, so mighty when amassed, to overcome a foeman worthy of her steel. And in the day of battle she has not forgotten her brown soldiers, born to the lance and the sword.

There are thousands of men from the mountains in the Indian Army to-day who own no allegiance to the Empire, but have been sucked into her service by desire to be led in war by the white officers who can beat them man to man with the rifle, lance, or sword.

If the story of the English in India is the story of the Indian Army, it may almost be said that the story of the Indian Army is the story of the Guides.

The Guides were in their beginnings a rough and ready police force, whose local knowledge made them invaluable in maintaining peace and punishing raids along the Border. Half of them were foot, half of them horse. Their headquarters was Hoti-Mardan, in the heart of the Peshawar Valley, a convenient spot from which to strike at the Malakand, the Khyber, the Kohat, or wherever trouble threatened. And Hodson, later of Hodson's Horse, was their first adjutant.

Hodson was perhaps the most brilliant soldier on the Border. His daring, his exploits, his excellence as horseman and swordsman, endeared him to his wild moss-troopers. But like many a man of deeds, generous, reckless, gallant to a degree, he was careless with the pen. The regimental accounts were found to be wrong. Money was missing, and Hodson had enemies. A court of inquiry was held, and Hodson left the regiment he had made under a cloud. The career of the brilliant cavalry leader had ended, so it seemed.

Just then, there came a sudden call from the South. The Empire was in danger. Men were wanted—men at all costs—white men and soldiers, and no questions asked. A native cavalry regiment at Meerut had mutinied and

massacred its white officers. Other regiments followed. The Bengal army was in revolt. Delhi, the ancient capital of India, was captured by the mutineers. India was well on the way to being lost.

Hodson put himself and his sword at the service of his Government. Soon he found himself on the Ridge before Delhi with that little handful of white troops who had to take the city, and take it at once, if India was to be saved. The position was desperate. But there was hope. If the Sepoys were in rebellion the gallant little Ghoorkas of Nepal were faithful; the Sikhs, conquered only yesterday, were true to their salt; the Pathans of the far Frontier Province never wavered; and the Guides were marching down to the help of the men upon the Ridge.

It was 600 miles from Hoti-Mardan to Delhi, over great rivers, across plains sweltering in the summer heat, always subject to attack from the rebel Sowars and Sepoys. The lean hill-men pressed on day after day to the succor of the Sahibs on the Ridge. Hodson Sahib was there. Hodson Sahib needed them—their Hodson Sahib. And they were coming. They covered the 600 miles in 25 days, fighting actions on the way. As they marched on to the Ridge in the dawn Hodson himself stood on a mound at the roadside and watched the regiment he had made, and might not lead in the day of battle, march by. His troopers saw and recognized him. Breaking their ranks, they crowded around him, falling on the ground, and kissing his feet. On the morning of the day they marched on to the Ridge they went into action. All through those days of siege and assault Hodson watched the darings and the endurance of his old regiment—darings and endurance he might not share with them. After the fall of Delhi he raised a force of Irregular Horse, called by his name, and himself was killed in the storming of Lucknow.

All that could die of William Raikes Hodson slept forever outside the walls of the city that he had stormed; while the regiment he had made, Delhi taken and the Empire saved, marched back to their frontier-post, to be greeted on arrival with a Royal Salute—the only regiment in history, I believe, to which that honor has been accorded.

And since then where have the Guides not fought? And when have they failed? When Cavagnari, the British envoy at Kabul, was murdered in 1878, his escort, composed of men of the Guides, died to a man around young Hamilton, their officer. During the Chitral War their retreat on the Panjkora River was the admiration of soldiers of every land. And in 1897, when, on a sultry August night, as the officers sat at mess, a message came through from the fort on the top of the Malakand Pass to say that the tribesmen had risen, and the fort was hard pressed, their night march saved the situation.

And if the story of the Guides is the story of the Indian army, so it may almost be said is their composition that of the army as a whole.

For their infantry battalion is made up of two companies of Sikhs, one of Ghoorkas, one of Dogras, one of Pathans, one of Afridis, one of Punjabi Mohammedans; men of various races welded into one potent instrument by the magic of the White Man's arm.

And it is that same instrument in large that is being used by the same arm in Europe to-day.

The end of the Mutiny was the end of the rule of the East India Company in India and the end of the old Bengal army. Thereafter the Government of England assumed control and the officers and men of the army in India became the direct servants of the Queen.

The Indian army as we know it to-day came into being. It is composed of horse and foot, but not artillery. Its strength, including reserves, is about 200,000. In each regiment there are two classes of officers—British and native; and the line between them is severely kept. Each class has its own mess, and the British officers, however junior, are in control. The service is voluntary, and there is never a shortage of recruits: the bulk of them being sons of men who served the British Raj in their day. The men enlist for three years and can serve on for a pension, if they wish. About one third of the native army is composed of "class" regiments. These are regiments in which all the men are of one race and religion—as Sikhs, Ghoorkas, Rajpoots, Mahrattas. The best soldiers are supposed to be the Mahommedan; but it must not be forgotten that the soldiers of Bengal who won India for England were exclusively Hindoos.

The Imperial Service troops are those maintained by certain of the native states, officered by British, and composed in the main of cavalry.

Of the native army, about 35 per cent. are Mohammedans, 63 per cent. Hindoos, 2 per cent. Christians or Jews. Mohammedans and Hindoos are rarely found in the same regiment, never in the same company.

In a cavalry regiment known to me there are 500 Mohammedan troopers, and one Hindoo—the colonel's bearer. In that regiment the crack squadron, which it is the ambition of every subaltern one day to command, is the Afridi squadron. Not a man in that squadron is a subject of the British Empire. He is from the hills beyond our Border, where the blood-feud reigns supreme instead of the Pax Britannica.

WARRIORS TRAINED IN BLOOD FEUDS

Sometimes a trooper of that squadron comes to his officer and asks for leave.

Why does he want leave?

He has urgent private affairs at home to see to.

Yes, he may have leave.

May be take his rifle?

No; he may not take his rifle. Urgent private affairs are best settled without rifles.

"That is not our way, in our country, Huzzoor."

"That is our way, Mizra Khan, and ours is the better way. For if your private affairs are settled against you, you might not return—nor your rifle."

"True, Huzzoor."

He goes away and returns in time—or not. He has killed his man, or has been killed by him.

And the faithfulness of these wild men of the Border is almost pathetically touching. At the beginning of the Tirah War in 1897, the present Commissioner of the Northwest Frontier Province was Commandant of the Khyber Rifles, a regiment recruited entirely from the hills through which the Khyber Pass runs and existing to hold that Pass. There were in the regiment several companies drawn from the tribes with which the regiment was about to fight. The Commandant assembled these companies and, addressing them, said:

"My country is going to war with your country. We are sportsmen. So are you. We do not expect you to fight against your own folk. Go home, if you wish to; fight against us, if you like. At the end of the war return to us, and we will take you back into our service."

Not a man accepted the offer. Some went up to fight against their own folk. One native officer assisted in the blowing up of his own family tower.

That was a story told me in the Khyber. I repeated it in the mess at Kohat, the headquarters of the old Punjab Frontier Force.

"I don't know if it's true," I said.

"It's true right enough," said a sapper officer on my right. "I was there at the time."

But the Indian Army is not composed entirely of Afridis. It draws, as has been said, from every race from the Khyber to Cape Comorin.

And how these troops, tried so often against men of their own race, will bear themselves when facing the guns and bayonets of the best-trained soldiers our Western civilization can produce, only time can say. But we know that their officers and England trust them. And they know the world is watching them.

And well it may. For is it not an amazing thought?—that at dawn and dusk each day, in a land that has never known the sound of the muezzin, thousands of Moslems, their foreheads bowed in Western dust, are calling upon Allah to aid them in the war they are helping democracy to wage in the heart of Europe.

WITH A PRUSSIAN DRAGOON REGIMENT

AN INTIMATE PICTURE OF THE MILITARY MACHINE—A DAY WITH THE CROWN PRINCE

I KNOW of no better way to give an accurate idea of the German army in the field than to describe briefly as they occur to me some first-hand impressions of a foreign observer with a German cavalry regiment. These impressions, covering a period of about two years, culminated in a series of exercises and manœuvres held during the early autumn of 1913 in northeast Prussia.

Our horses were waiting outside our door and, once mounted, the brisk September air blew all the sleep out of us. As we rode down the narrow village street the gable ends of houses at the end were quaintly picked out in sharp silhouette against a broad chrome-white streak of day in the east. Before we reached the fields we were riding in a big company of silent cavalrymen, dragoons and Uhlans combined. They came out of lanes and cross streets and courtyards as noiselessly as shod horses can move on macadam. Here and there a sabre rattling against a boot, curb chains clinking, a low monotone of hoof-beats; no calling out, no bugles. The silence was very impressive.

Staff orders came to each regiment the night before the manœuvre, usually before nine o'clock, and then each squadron leader in the regiment got his own order accordingly. Thus every man knew the night before precisely what he would be expected to do the following morning. Every single detail was carried out precisely as it would be in war time.

Up in the blue sky a couple of aeroplanes were sailing around like noisy buzzards. Ahead of me in their gray uniforms cavalry scouts stood out fairly clearly against a prevailing straw color of stubble fields, for the only green on the ground at that time of year was the fields of potatoes and beets checkerboarded with the brown of fresh-plowed land. In Picardy and Normandy now the harvest will be gathered in or standing crops trampled into the same buff color as stubble. And so against this background the much-described German fog gray, which merges wonderfully into spring or summer landscape and is as vague as anything else on snow, will stand out more distinctly than British khaki.

Somewhere through this tranquil, sun-lit agriculture the Red infantry was already mov-

ing toward us, taking cover on the reverse slopes of hills and in ravines as their cavalry patrols, followed by horse artillery, felt for our advanced positions. With my glass I could soon make out groups of the "enemy's" screening cavalry, and a big column of dust filtering straight up in the air over toward Alt Warshow indicated the presence of a large body of troops advancing along the road or across plowed fields. Our own dispositions behind me were easy to observe from this vantage point. Regiments of infantry were moving out by roads and across fields to take positions in advance on the line or in reserve. Their solid gray masses seemed to ripple with the motion of their marching. Most of the Cavalry Division, dragoons, Uhlans, cuirassiers, and hussars, had been concentrated in advance on this flank. In the next brigade beyond our position were the famous *Todtenkopf* (Death's Head) Hussars from Danzig, the Crown Prince's regiment, recognizable then as now only by their gray horses. While I sat watching them the Red and Blue outposts came into touch far out in front in a crackling of carbine fire with intervals like the first pattering drops of a shower. The battle was on.

THE MEANING OF "UHLANS"

The matter of distinguishing the various bodies of German cavalry is not generally understood outside of Germany. Foreign newspapers have been calling then all "Uhlans," probably finding that an odd and mouth-filling word apparently synonymous with cavalry. In reality there is little or no distinction between dragoons, hussars, cuirassiers, and Uhlans. All of them are armed precisely alike, with lance, carbine, and sabre, and all perform alike the mounted and dismounted functions of the cavalry arm. During peace times they are distinguished by their garrison uniform. But in France and Belgium now, as in these field manœuvres last autumn, every cavalry regiment wears the same war gray. The cuirassiers have discarded the conspicuous shining breastplate which gives them their name; the hussars have scrapped their handsome but useless cloaks and facings. The various branches of the service are now distinguished only by the trimmings of their uniforms—shoulder straps, buttons, etc.—undiscernible at fifty yards—and by their headgear. Uhlans wear a sort of flat mortarboard top to their helmets, dragoons and cuirassiers have a spike on theirs, but in the latter regiments the steel comes down low on the backs of their necks, as is the case also with French cuirassiers. Hussars, lightest of all in men and mounts, wear a straight up and down beaver cap with a pompon in it. All the helmets are now covered with gray cloth, so that the steel protects but does not glitter in the sun. Uhlans and cuirassiers are the heaviest German cavalry.

On the day of the manœuvres here briefly described our brigade was deployed or in action much of the time with the Crown Prince's brigade, thus bringing dragoons, Uhlans, and hussars all together in several evolutions, yet it was almost impossible in the rush and smoke and dust to tell them apart. Whenever cavalry or artillery moves in large bodies it is always either muddy or dusty. This day it was exceedingly dusty. On one occasion the whole Uhlan regiment made a charge down a hillside, across a road, and into a plowed field against supposedly broken hostile cavalry on the far side. They came thundering down in double rank across the stubble, hit the road with a prodigious clatter, broke into the plowed field, and disappeared utterly from sight in a panoply of dust that surged up over them twenty feet high. We heard them yelling afterward but never saw them again until the end of that movement.

This charge of the Uhlans was preliminary to another by our regiment, which had been held back in reserve. We turned off the road to the left, minding the Colonel's upheld sword arm, each squadron leader handing on the order, and then, wheeling into double rank as the Uhlans had done, galloped down a ravine, jumped a couple of ditches, which left several riderless horses careering over the field, then up the other side, taking machine gun fire all the way, and delivered a charge on the right of the Red cavalry's line slam into the mêlée theoretically created by the arrival of the Uhlans that were ahead of us.

The whole movement would have failed, however—since the ravine took most of the shock out of our impact and we found ourselves outnumbered—but for the very opportune arrival of the Fifth Brigade, which made a magnificent onslaught, brigade front, outflanking and crumpling up an attempted countercharge by the enemy's reserve regiments. The umpire rode in between us and held a brief critique, giving a needed rest to the horses, which were well blown on both sides.

DISCIPLINE BETTER THAN HORSEMANSHIP

In such manœuvre charges each line pulls up or ceases firing when within fifty yards of the other and it is an indication of the rare discipline and training in the German cavalry that every trooper and horse, no matter how excited, always obeys the signal. You rarely or never see an unmanageable horse or an overheated rider driving on into the ranks of the enemy. Their discipline is, however, better than their natural horsemanship. A German is not a natural horseman, although he can attain a high degree of mounted efficiency. The many riderless horses that I saw during these manœuvres were accounted for partly by the prevalence of small drainage ditches, horses in the rear rank not marking them in time to jump or stride clear so that horse and rider came down together. Only against cavalry, it must be explained, are charges made in two ranks and boot to boot; mounted attack against

machine guns, bicycle companies, artillery, or infantry is always in single rank and wide open. A German cavalryman's seat is formal and inelastic, his hands heavy. He rides in a saddle something like the United States Army McClellan, with longer bars and without the cut-out slit in the centre of the tree and with open stirrup. He is taught to ride with a firm grip of the lower leg and makes very little effective use of balance. In all the German cavalry regiments I never saw any one ride with a loose seat except the Crown Prince, who sat his horse very carelessly, with his legs and feet sticking out in front.

The Crown Prince himself was in the field a puzzling element in the general scheme of military efficiency. His regiment took part in the brilliant charge of the Fifth Brigade of which I have just spoken, and he has many times proved himself a cavalry leader of great spirit and ability. During the critique, while we were dismounted, he came up and shook hands with me very unaffectedly and cordially, supposing no doubt that I was a lonely foreign officer who might be made thus to feel more comfortable. Even for thirty-two, he seemed then and afterward very boyish, constantly smiling and talking to those near him, smoking a cigarette when not in action. In the top of his soft black leather boot stuck an English brier pipe.

THE CROWN PRINCE AS A COMMANDER

Later in the day, as senior regimental officer, he commanded the same brigade on account of an injury to the commander, but fared less well than in the morning. The hostile cavalry had made good its escape after the morning's repulse and was reported to be advancing again, heavily reinforced and covered by artillery and machine guns. Our division commander with two brigades blocked one line of approach and sent the Fifth Brigade with our regiment to dispute the other line, intending not to be drawn into a serious engagement, but to develop the enemy and, after delaying him, make his determined opposition at a point to the rear where he could get prearranged artillery and infantry support.

The Crown Prince messed up this plan completely. As we were approaching Wusterwitz we were fired on by machine guns, and, deploying both sides of the road, the whole brigade charged. In the outskirts of the town we ran into superior cavalry and were promptly ruled overthrown. Falling back in good order we were enabled to reform under cover of two bicycle companies, which most opportunely bowled up the road, threw their wheels into the ditch, and went into action with great spirit. The enemy, however, continuing to appear in increasing numbers toward both flanks, the division commander was forced to come to our assistance with his two brigades, but he had no more than arrived when we were attacked brilliantly by the Red cavalry and rather badly used up again. Our brigade was just mounting, having been holding the enemy off with dismounted fire, so that the Red arrival threw us into confusion and prevented our meeting the attack with any headway.

In the long critique which closed the day's work, the division commander was severely criticised for not making his orders so "sharf" (insistent) that it would have been impossible to draw any part of his command into a fight where he had not planned to engage. This was, of course, a sharp indirect criticism of the Crown Prince, who took his medicine like a soldier, admitting frankly when questioned that the fault had been his.

A CLASS IN TACTICS ON THE FIELD

The corps commander who held this critique, General von H——, was famous for his long-winded lectures which were, nevertheless, appreciated for their sagacity and practical usefulness. On this occasion he talked for nearly an hour and a half, this critique, as generally, being held on the top of a hill to give a view of the terrain fought over. The General, a short man, sat on his horse so as to be in a commanding position in the centre of the brigade and division commanders grouped around him on foot. I was amused at the Crown Prince taking pictures of the manœuvre director during the lecture. He grew very bored toward the end, shifting from one foot to the other. He had a miniature camera with which he snapped the General two or three times, holding it behind his back until the opportunity presented itself, when he would quickly take the snapshot and then hand the camera to an officer who stood directly behind him. This officer would turn on a new film and return the camera to the Prince unobserved.

NO UNNECESSARY NOISES

To me the most extraordinary thing about the movements of a German regiment in action, and this is true of infantry as well as of cavalry, is the entire absence of unnecessary noise. During this whole day of sham fighting, for example, the only bugle note heard was the recall, sounded late in the afternoon to signify that the manœuvre was over. Commands are rarely shouted; there is none of the continuous yelling generally associated with the control of large bodies of men. The German system presumes an absolute attention, so that orders may be given by mute signal. A regimental commander, in sight of his troops, will give the order to mount or dismount, to change pace or direction, by simply waving his arm. When a leader is out of sight or at a great distance his commands are carried by orderly officers, attached to the General Staff or regimental and brigade commanders, who ride back and forth transmitting orders by signal to squadrons and companies. In the course of a hard day's work each one of these orderly officers will use up three or four good mounts.

There is, however, one occasion when Ger-

man drill regulations call for all the noise possible, namely, when a cavalry charge is pressed home. A charge is rarely, if ever, launched over a longer distance than half a mile. In the last hundred yards of this distance or at a signal as horses are spurred to top speed, every man breaks out into a wild, inarticulate yell. When a brigade or division comes on all together with this united outcry the effect upon a broken enemy is, as it is intended to be, appalling.

YELLING UNDER ORDERS

Herein lies another curious instance of the German way of doing things. The German military system does not take into account the natural impulse of a charging, excited trooper to yell anyway under such vociferous conditions. He is commanded to yell as part of the shock action to which each man must contribute to make overpowering. During the winter schooling he actually is drilled in individual charging to yell at a certain point in the charge and is severely criticised if he does not make noise enough. It is the same way with singing. The Germans are naturally a musical people and sing spontaneously, but with regiments in the field songs are started and stopped by command.

Just as quietly and unaccountably as they emerge at dawn German soldiers fade away into their villages at evening. There is as much discipline in this as in their conduct in the field.

A PEOPLE PROUD OF MILITARISM

Another thing must be borne in mind in all this automatic adjustment: The people themselves are keyed and used to military associations. Nearly every householder—minister, banker, shopkeeper, peasant—is either himself a reservist or has immediate army affiliations. If you go into a peasant's cottage you find the principal ornament in the best room is a photograph of the owner in the uniform of his regiment. If you visit a country estate you find the family portraits are all in uniform, and in the den or study of your host you find his helmet and sabre forming the centre of a group of regimental scenes and trophies of the hunt. On the walls of the dining room in taverns hang pictures of several generations of Kings and Kaisers and historical scenes taken from the life of the local regiment in peace and war.

As to the burden of military service, it has rather an opposite effect in Prussia from that imagined in unmilitary nations. Herr von Alten, when we were quartered in his house, spent most of the evening and part of the following morning explaining to me why he had not served with the colors. In some districts of Germany non-service is a kind of shadow always to be felt, a burden of recurrent proof. "The girls won't dance with the no-service men," the Colonel told me as a matter of fact.

Deep-chested, clean-shaven boys between eighteen and twenty-six make up the first-line cavalry. I have spoken of their discipline. It is a native discipline carried over from civil life. During my two years with a German regiment I never saw a man drunk, although every squadron has its canteens. Outside of regulations there was almost a complete absence of disciplinary measures for the rank and file. In the "Kasino" (officer's club) you never saw any one except at meal time; there was never any treating, and except on regimental nights once a week, or some special occasion like the Kaiser's birthday in January, when all married officers join the others at dinner, there was never any sitting about after dinner. You never heard any officers in the field kicking against an umpire's decisions.

So much for discipline. There are two other ingredients in the German military spirit. On the last day of the manœuvres occurred one of the most stirring evolutions I ever saw, of no value as a military operation but tremendous as a spectacle and probably put on purposely for its effect on participants and spectators alike, for there were thousands of the latter present gathered from all over the district. With the infantry and artillery already engaged in front the entire cavalry division was brought from the rear and charged in a body. Coming up first *en echelon* by regiments they worked thus into brigade front at the gallop; then the three brigades swung into line and the whole flying mass of forty-five hundred men abreast, yelling like buccaneers, cut loose at a dead run over clear ground. They bore down like a long wave, the strung-out infantry in their path throwing themselves together at signal in prone clumps of ten or twelve men each, through which the charge streamed unchecked, straight on through the guns which continued to fire up to the last second and on into a line of flags beyond that indicated the enemy.

Our manœuvres in Prussia wound up with a huge review of the whole army corps in the fields near Schlawe. There were bands of music then, flags flying, and the lance pennants of cavalry squadrons were unfurled and snapping in the breeze Infantry regiments came by thumping the ground with the goose-step which does not seem ridiculous in a German parade. Even the bicycle companies kept uniform time with their pedalling as they wheeled over the grass. The thing that impressed you most was the enormous pride that every man seemed to take in what he was doing: he was alive with military ardor, informed by it, possessed by it.

Serious pride, capability of daring abandon, and innate discipline: there you have the military spirit of the Prussian cavalry regiments. And when you are with them it is difficult to conceive how German militarism oppresses the people, for the people and the army seem one and the same. The German army is the German nation.

THE MEN BEHIND THE FRENCH GUNS

AN ARMY OF MANY TYPES — A FRIENDLY DISCIPLINE — VETERANS OF COLONIAL WARS

BY

CHARLES WELLINGTON FURLONG, F.R.G.S.

AUTHOR OF "THE FRENCH IN NORTH AFRICA," ETC.

I HAVE seen the French regular on active duty along the Moroccan and Tripolitan frontiers, in barracks throughout France, followed him in the Tunisian Sahara, and seen him in "heavy marching order" in Algeria, and am convinced that of the many hard colonial training grounds in which France schools her troops, North Africa has contributed most to give the French regular "edge." In hard, uphill fighting in Morocco alone, France has probably made more than 100,000 veterans since 1902, so the French regular comes into this War of Expansion with an infinitely larger nucleus of veteran troops than Germany.

There have been any number of statistics printed of the men and armaments of the warring Powers. These have been based almost without exception on the comparative number of human automatons per nation available for slaughter. The primary military consideration has been — and rightly so — methods of training, maintenance, mobility, arms and equipment, efficiency of officers, perfection of every unit and department toward a common end, that the different branches and departments of the huge army mosaic, scattered over the territory, at a given order, like the turn of a kaleidoscope, may find each particle absolutely adjusted to balance the completed design.

These materialistic phases necessary to the perfecting of a great modern war machine were achieved to a remarkable extent by France and perfected, so far as human ingenuity could do so, by Germany. Yet we may well ask what quality in French arms has—at least for a time —enabled her to hurl back the mighty Teutonic Juggernaut. It is an element, I believe, to which too scant importance has been attached—the human element.

Yet that abstract, elusive, psychological will-o'-the-wisp which hovers over man individually and collectively and produces what we call "state of mind" is a determinant. Other things being equal—or unequal—the human element will go far in making for the success or defeat of French arms. To appreciate this, one must understand something of the characteristics of the French man behind the gun, not only as a fighting force, but as an individual with inherited tendencies, affected by environment and modified by foreign influences. One must inspect more than the polish of his belt clasp and buttons, cleanliness of his rifle barrel, and his "position of the soldier." One should find out whether his qualities will enable him to endure in good spirit under stress; to what extent he is able to coördinate thought with act on the firing line and his control in rout, or that which sometimes is greater still—control in victory.

Watch the French regular, agile as a chamois, climb in and about the narrow defiles of the Vosges, study him about his bivouac or in the long lines of trenches at Verdun. It is difficult to pick a type; for one sees the tall, large-boned Norman, sometimes florid and fair-haired, beside the lithe, small-boned Provençal, swarthy and undersized. One breathes of the Baltic, the other of the Mediterranean and its southern European medley, with a touch of the Greek and a dash of the Arab. There are Picard and Basque, descendants of the Cadurci of the central southern highlands and West Brittany Amoricans, whose Keltic origin sticks out like the knubs on an Irish shillalah. Besides these, there are Gascons and Bergundians and hybrids from anywhere, yet Frenchmen all.

Yet, despite this physical heterogeny, there is an indefinable, psychological something running through the French army which gives their peculiar tone and temper and makes you think of them as "the French;" and the comradeship bespeaks an army intensely solid and organic. A Parisian sergeant may tell you that this spirit which leavens the nation is fashioned on the banks of the Seine, and perhaps it is. It has been well said that the social instinct is the keynote to French character. The French soldier requires the sense of gregariousness and of a certain personal touch; he is an analyst and, perhaps more closely than the regular of any other army, understands the character of his officers; likewise the officers understand more intimately their men. This has been criticized as detrimental to army discipline and efficiency, but if there is one thing a Frenchman thrives on it is companionship, whether between "three musketeers" or more. Their social instinct is the mother of that which they have above all else—distinctive national character.

Their social instinct is productive of a relation between officer and men which could not be conceived of in the German army. *Monsieur* is not infrequently used by non-

commissioned officers to a private, while *mon Colonel* not infrequently addresses him as *mon enfant.* That old veteran of African campaigns, General Richard Bugeaud, had a most familiar way of speaking and joking with his soldiers, which won for him the name *Père Bugeaud.* Yet they bore him the highest respect and, when his courage and decision were evidenced in times of danger, occasionally one could hear one soldier remark seriously to another, "Richard is himself again." To-day a frequent scene about camp in off hours is to find men gathered around their commanding officer, who, often from horseback, chats to them most informally, urging them to deeds of valor and self-sacrifice and to bear themselves always as Frenchmen.

This war finds the composition, nature, and principles of the French army greatly changed since 1870. To-day the officers have had the superb education and training of the French West Point, and the experience of forty-four years of consistent defensive preparation. So the French soldier goes toward Metz with that great asset—confidence in his officers—and, I believe, confidence in himself.

How strong a part dash and the spectacular play in their grand manœuvres is shown by a correspondent who vividly "recollects a charge of five regiments of French cavalry across nearly 800 yards of absolutely open country against a battery, a battalion of infantry, and a regiment of dismounted dragoons in September last, and the unconcealed disgust of one old soldier who had fought in the battles around Metz in 1870 at what he characterizes as 'crass idiocy.'"

But who shall say that on the field this very dash of the French, appealing so to French sentiment, has not much to do with the success of their remarkable mobility and rapidity of attack for which they are famous. How quick the sentiment regarding Alsace and Lorraine affected the actual movements of French troops is evidenced by the lightning-like rapidity in occupying the Vosges and entering Mülhausen. Perhaps by reason of these salient characteristics, coupled with the rather prevalent erroneous idea that the physique of the Parisian French is typical of the French regular, there were grave doubts as to the French army's ability to cope with the present crisis, but intellect is France's chief power, and one of her salient national traits is good sense. The French trooper is industrious, on the whole temperate and, like Frenchmen generally, even calculates his pleasures. So in overcoming obstacles,the Frenchman, in war as in peace, is likely to conquer through his many-sidedness, by intelligent quickness, rather than by a preponderance of brute force or quantity.

No criticism can be made of the Frenchman's courage, though it is less tenacious than that of the colder-blooded Anglo-Saxon. He makes, perhaps, a relatively better fighter in a winning battle, yet many an Alamo in her colonial wars has redounded to the credit of the French fighting man. The French regular is particularly adapted to rapid offensive work and, in all branches of his army, mobility, quickness, and cleverness in fighting are his strongest assets.

TURCOS AND THE LEGION

THE SPAHIS, THE ZOUAVES, THE TIRAILLEURS, AND THE FOREIGN LEGION

BY

CHARLES WELLINGTON FURLONG, F.R.G.S.

AUTHOR OF "THE GATEWAY TO THE SAHARA," "THE FRENCH CONQUEST OF MOROCCO," ETC.

SPAHI?" "*Oui monsieur,*" and a swarthy man of the desert dismounted lithely before me. A red fez edged beneath the folds of a turban bound with brown cords of camel's hair, less brown than the bronzed, clean-cut face it surmounted, while his jacket flared red through an opening of the flowing burnoose. The blue of his waistcoat harmonized with the darker blue of the full trousers gathered into his cavalry boots, half submerged in the hot, glaring desert sand. Thus we met under the scorch of a Tunisian sun, at a Saharan oasis edge, south of Gabes near the Tripolitan frontier.

"My squadron has camped near the Bedouin village a little south. We have been after a murdering band of Hoggar Touaregs—took two months, but we got them . . . *adieu monsieur.*" Then this courier rode on, to deliver his report. He was a corporal of Spahis, but his mien was that of a Tunisian bey.

Such was my first intimate contact with the French native trooper, found in almost as many climes and lands as France has colonies—from Tonking to Madagascar, from the Congo to Algiers. Consequently he is of as many breeds.

Now that the press is telling of onslaughts against the German front and left wing in the Vosges by certain black and bronzed regiments from French Africa, who "fight like devils," we may well ask what manner of men they are.

For nearly a century France has been organizing native troops in Africa, composed of

picked men from the Kabyles, Arabs, and Blacks, adapted to protecting this territory, because acclimated to the rugged, heated, mountain regions of the coast and to the fierce, sun-scorched plains of the south. During the Franco-Prussian War, not only Spahis, but the Sahariens (Algerians riding camels) lurched through the southern vine provinces of France to the fighting line and proved their worth.

France since then, constantly standing in the shadow thrown across her border by Germany, could little afford, with her comparative shortage of soldiery, to garrison any great number of regulars in her colonies. As she extended her great African Empire to its present dimensions of more than a third of Africa, it became necessary to support her power there by native soldiery, with Frenchmen scattered through their ranks and a nucleus of French regiments, to give morale. So since 1871 France has been developing a military machine in her North African colonies, undoubtedly in part as an auxiliary force in anticipation of the present crisis. In fact, Germany's opposition to the French acquisition of Moroccan territory was, perhaps, on account of the latter acquiring fighting men from the eight millions of warlike Moroccans of the Atlas and Riff country, and from the Atlas to the Vosges is scarcely farther than from New York to Chicago.

A few years ago, according to the French Army annual, it comprised sixty thousand men, under a commander-in-chief, with headquarters at Algiers, with three divisions commanded by generals of division at Algiers, Oran, and Constantine. The three divisions are divided into three sub-divisions under generals of brigade; besides these are the general commandants of cavalry and artillery, commandant *supériéur* of engineers, director generals of health, commissary, veterinary, and minor services.

The history and legends of any one of the branches of the 19th Corps d'Armée is romantically fascinating, but we have to do now primarily with the native and foreign soldiers as found in the Zouaves, Tirailleurs, Spahis, and *Legions Étrangères.*

ZOUAVES

The most historical and fabled of the native troops are the Zouaves, partly formed of French *volontaires Parisiens* and *Bataillons de la Charte* (prisoner battalions). These regiments, renowned as much for their extraordinary behavior and rascality as for their extravagant daring, were organized about 1830, soon after the Algerian conquest, and first contained only Kabyles and other natives. They are fire-eaters all, a rather short-statured, broad-shouldered, deep-chested, bull-necked, picked lot. There is hardly a hill of the Algerian Atlas that has not borne witness to their agility, endurance, and wonderful fighting ability; few valleys in which they have not bivouacked; and scarcely a wood copse of corkwood or Algerian oasis through which, in their picturesque green turbans, blue jackets, and red oriental trousers, bound at the waist with broad *cummerbund*, at the lower end in leathern buskins, they have not flitted as skirmishers like evasive will-o-the-wisps in streaks of golden sunshine and violet shadow.

SPAHIS AND CHASSEURS

The union of two elements is necessary in the African cavalry to insure success—French and Arab—the Chasseur and Spahi, for, despite his valor, the tall soldier in blue needs Arab to hunt Arab; just as our own colonists needed the Indian to ferret out the redman from the forests, and as to-day our regulars need the Moros under the gallant officers of the Philippine Constabulary to run down the *ladrones* in the mountains and jungles of Mindanao.

Long experience has proved that the chief of each corps and the captain of every squadron should be a Frenchman, and only in exceptional cases a native. The expedient maximum of French privates seems to be one fourth, in this corps often called with a smile "the refuge of sinners," for many free and easy characters chafing at the restraint of regular French discipline are in its ranks. The Spahi officers must serve a minimum of two years; for the private a knowledge of French and Arabic is an asset in promotion. Contingents of Arab allies are sometimes temporarily incorporated in the corps.

The Spahi and the horse he rides are abstemious in their habits. A little barley bread for the man, chopped straw, a bit of green fodder, and a few wild leaves of artichoke for the steed, and they will, with light equipment and sabre, pistol, and carbine, like the Chasseur, brave the heated desert wind without water, and go 45 to 60 miles without resting or unsaddling. This, it must be remembered, is on the well-bred native horse, who, like his master, is adapted to the climate and fatigue.

The Spahis and Chasseurs d'Afrique have always been the couriers, the spies, the vanguard of the military moves, the vedettes of warlike Algeria posted at the extremity of the lines. These marvelous horsemen have wielded a sabre and carbine control over a vast territory of mountains and of sand and silence—supple, high-strung, indefatigable rough-riders of the desert, they have made it possible for France to push her conquests even south of Timbuctoo, west to the Atlantic, and east to Wadai and Darfur.

The Chasseurs are good marksmen, and whether in close order or as skirmishers are wonderful fighters and equally wonderful plunderers. A little corn for the Chasseur's horse, a little rice for his master, and no obstacle stops them. They neglect no skilful precaution, which has gone far to inhibit them with the habit of conquest. They are the elite of the French cavalry in Algeria. Bravery in action and generosity after victory have won for them from the Arabs the title, "lions of the

desert," and from the French Government at Constantine and Oran exemption from certain routine parades and the enjoyment of certain salutary irregularities.

Both branches of this light cavalry are such in the real meaning of the term and in the highest acceptation it admits. "Chasseurs and Spahis! Their numbers are written in all epochs and in the most glorious pages of this modern Iliad."

TIRAILLEURS INDIGÈNES

Besides the Zouaves, there are the famed *Tirailleurs*, the lightest and most mobile troops of all, comprised of sharpshooters and used primarily as infantry skirmishers, for scouting and advance guard work. France has organized *Tirailleur Indigènes* or Native Sharpshooters in a number of her colonies, and perhaps those best known outside of Africa are the *Tirailleurs Tonkinois*, dubbed by the Foreign Legion "Young Ladies," because of their adherence to their peculiar head dress and because they consider it beneath their dignity to carry anything but arms and ammunitions, the rest of their kit being carried by the natives, who follow like a lot of pack peddlars. The *Tirailleurs Tonkinois*, like the Goorkhas, take their wives on the march, who carry the family cooking pots from shoulder poles.

In the old days the French African light infantry of the line were called "Zephyrs"; some hold that it is now applied to all French infantry in Africa, but it is applied more often to the penal battalions sent far south into the reeking heat of the fever-laden Sahara—the worse the crime, the farther south.

"LÉGION ÉTRANGÈRE," OR FOREIGN LEGION

Perhaps of all France's alien troops, perhaps of all troops in the world, over the Foreign Legion hovers the greatest halo of glamor and romance. There have been Foreign Legions in most of the world's great wars, and, in modern times, have been known as such. The French Foreign Legion is said to have originated in the Scottish Archers of Charles the Seventh of France, and from all the other nationalities employed by his successors. After the Napoleonic wars the foreign regiments were disbanded, except the Royal Foreign Legion created in their place by Louis XVIII, gradually becoming merged into the 86th Regiment of the Line. The year after the Revolution (1831) the present Foreign Legion was formed, the French Chambers decreeing that it was not to be employed on the soil of France. We find regiments of the Foreign Legion ordered wherever French colonies need their presence, yet the world identifies it most closely with its two North African regiments.

So we find, clothed in the loose red trousers, blue blouse, double-breasted black tunic, with red facings and wearing red fringed green epaulettes, and the blue woolen cummerbund around the waist, and a red *kêpi* on which flares the seven-flamed grenade, the badge of the Legion, approximately eight thousand *légionnaires* living on seventeen *centimes* (three and a half cents) a day.

In many ways they represent the same types of men as our Federal Volunteers, and, like the volunteers of any country, include many adventurous spirits, deserters from armies, men who have slipped a cog in life, men whose histories read like veritable legends. In the Foreign Legion, marching "side by each," are French, Poles, Italians, Belgians, Eurasians, Levantines, Austrians, Russians, Greeks, Swiss, and a very few British. It has included as many as twenty-eight Americans at one time, but, strange to say, more than half the legionnaires are "made in Germany," if we include those from Alsace and Lorraine. Men are promoted to commissions from the ranks and some of the most noted of their officers have borne German names, and one company was led to the attack of Casablanca, Morocco, in 1907, by a Japanese captain.

Those who join from love of adventure are not likely to be disappointed: the story of the majority is framed about a woman and those who join, as many do, for a panacea of crossed love, are disappointed, for the légionnaire is more likely to lie down in the vermin-filled bunk or blanket than in a bed of roses. Then there are the "broken men" who have joined "to save" their "injured feelings," "for it was time and time to go," or to expiate their sins, or down-in-the-gutter men who hope the rigid régime will force them to buck up and start anew—these, too, if they survive the rigorous campaigns, are not disappointed.

The average French légionnaire is of the working class, likely enough a deserter from the French Army, who has enlisted as a Swiss or a Belgian. Beside these, as one strolls through their barracks at Sidi-bel-Abbes, a bit in the hinterland of Oran, or sees them "off-duty" in a desert encampment, one may find in the sockless shoes of legionnaires ex-army officers, barristers, professors, diplomatists, and even ex-bishops, perchance "heel-balling" their black belts, and, among those doing their washing, a prince or a banker; and if the missing scion of a noble house is wanted, the well worn advice is — "Write to the Colonel of the Legion."

But it is a life which either "makes or breaks" a man, generally in the march, which is the severest test; each man carries his entire equipment, the small *tent d'abri* going to make up the seventy to eighty pounds of weight on his back. Under this in the withering heat on burning Saharan sands he has been known to march thirty miles in a day, with hourly ten-minute rests. It has been well said that "the Legion is a mercenary force in theory only. The legionary practically fights and works for nothing, so far as money is concerned, for a sou a day is all the cash he gets." Thus "France takes much from the Legion and gives little in return."

CAMPAIGNING WITH THE RUSSIANS

THE RUSSIAN SOLDIER—A COMBINATION OF BRAVERY AND IGNORANCE—HIS LOVE OF THE BAYONET

MASS, bravery, and ignorance are the chief characteristics of the armies which threaten Austria and Eastern Prussia. Able leadership understanding the Russian limitations might largely overcome the drawbacks of ignorance, otherwise future Russian advances into Germany must be dearly paid for as was the first.

Capt. Carl Reichmann, of the Seventeenth Infantry, United States Army, was with the Russian forces in Manchuria, and his description of the Russian soldier in that war will give a clear picture of the make-up of the armies that are attacking Austria and Eastern Prussia now:

"Physically the soldier is generally a magnificent specimen. In the squalid surroundings of Russian peasant life only the fittest have a chance to live. High living has not made his system delicate or his blood impure. He is used to living in crowded habitations; he is uncommonly well able to live in large, crowded masses in camps, and has capacity for digesting a quantity of bacilli that would slaughter the beef-eating armies. His main food, in or out of the army, is black rye bread. . . . No beef-eating army would have survived a three weeks' camp at Haicheng, where large bodies of troops were constantly camping, and where, as everywhere else in Manchuria, flies were a terrible pest, and where occasional downpours spread the contents of the sinks over the entire plain. Yet there was little, if any, camp disease—certainly no epidemic.

"The Russian soldier is not much bothered by nerves. . . . Religion plays a great part in the Russian army. The officers rely on discipline, coupled with religion, to carry the soldier through his trials. Every regiment has a chaplain. On Sundays and on holidays he brings out his vestments and his little field altar, the regiment forms around him in a hollow square, and he performs divine service, assisted by a choir of soldiers, whose rendering of the beautiful chants of the Orthodox Church is always good and often magnificent. No one who has seen the Russian chaplain lead his regiment to the charge with raised cross—who has seen the surpassing solemnity of the spectacle of a large body of troops standing just outside the fire of a hundred guns with bared heads and chanting their supplications to their Maker before moving into action—no one who has witnessed such scenes will deny that the Russian officer is right. The Russian soldier is brave—partly because he is naturally brave, partly because of his inertness, partly because of his religious resignation. No one will deny the steadiness in action that has characterized him wherever he has appeared on the battlefield in past centuries as well as in modern times.

"The officer looks upon his soldiers as rude, crude, ignorant children, to be made into useful citizens and defenders of the state. In the absence of compulsory education the army officers are the educators of no small part of the nation. Discipline is not as severe as might be expected and accommodates itself to existing conditions.

"The relations that exist between officers and soldiers are perhaps best illustrated by the following: When an officer takes command of his organization, say, for instance, in the morning, before marching, he says to his men, 'Good morning, children,' and they shout in return, 'Good health to Your Excellency!' No general in Manchuria ever passed a detachment of his own troops, however small, without exchanging some such salutation. At his reviews of newly arrived troops at Liaoyang, Kuropatkin would address each company on its approach, 'I thank you, riflemen,' and they would shout back in well-cadenced chorus as they swung past the general, 'We are glad to do our best, Your Excellency.' Sometimes a general gains the special love of his soldiers and they then address their favorite as 'Papasha' (little father).

"It goes without saying that the Russian soldier is fine material, but he has one shortcoming—lack of intelligence—that is fatal and prevents his leader from getting the best results from this otherwise good soldier.

"The Russian mass was a unit rather than an assembly of units; it was heavy and cumbersome; it was with difficulty set in motion and easily brought to a standstill. The swarms sent forth by the Russian leader despised death as much as their opponents, but he could not control them except as a mass. He could not be sure that there would be intelligent coöperation. He could exact from his men unheard of exertions, but owing to the slow operation of the soldier's mind he could not exalt him to that desperate exertion of what strength remained in him that the Japanese leader could. Despite his well-known bravery the heavy Russian soldier was vanquished by his brighter and more agile Japanese adversary."

An interesting and corroborative picture of the soldiers of the Czar is given in the report of Lieut. Col. Walter S. Schuyler, who was also with the Russian armies:

"Whatever the Russian soldier may lack in training in various directions he certainly

does not lack that discipline which exacts thorough and unreasoning obedience on the part of the soldier. He is always most observant of the regulations for saluting officers, and if one were to judge from that alone, the Russian army in Manchuria would be considered most highly trained. He is most obedient to his officers and no thought of insurbordination ever enters his mind. What he essentially lacks is intelligence. The Russian army apparently comprises very few men of the class sufficiently intelligent to make efficient non-commissioned officers. Certain men wear on their shoulder straps badges of corporal or sergeant, and the sergeant-major, or first sergeant, of a company is usually conspicuous for his force and habit of command, but below him, so far as efficiency goes, there is nothing but the private. This, as a consequence, throws additional responsibility on the officers and makes their duty more laborious than it should be. This effect is increased enormously by the actual stupidity of the soldier in certain directions. When one asks a question of a Russian soldier, no matter how simple a question, it may be the name of the village or the direction of the road or the whereabouts, perhaps, of his regimental headquarters, he almost invariably answers either, 'I know not' or 'I cannot know.' He can tell the name of his regiment, which is usually the name of the town of his nativity, but he often cannot give the number of the regiment, although he wears it on the front of his own cap. The effect of this is that every time an order is given him to perform any duty it must also be explained as to just how it is to be done. This results in a lack of conciseness, and to an observer it appears that the explanation to a soldier or a peasant of how to do a simple thing consumes an amount of time and energy entirely disproportioned to the importance of the thing to be done."

Captain L. Z. Soloviev, of the Thirty-Fourth East Siberian Rifles, who served in the Japanese War, says:

"In describing the characteristics of the Russian soldier it is impossible to pass without remarking the unswerving obedience with which he executes the most dangerous orders—such as secret, outpost, and sentinel duty. If the officer enjoys confidence and authority, if he takes good care that the soldier be fed well and on time, if he is interested in his personal needs, he may be sure that the company will not leave him in battle, will not go back upon him, but will go forward unanimously. As a general rule the soldier is rather hopeful. If he is well fed and has rested, his spirits are good.

"The soldier in position will go to sleep at the first opportunity. It was a frequent occurrence during intervals of combat to hear the riflemen snore. The men sleep as soundly under the fiercest cannonade as if they were in their own houses.

"If there is the slightest possibility for doing so, the sharpshooter will boil water and make tea in his kettle. Our infantrymen have an abnormal liking for tea, and they find means of preparing it, even under fire, somewhere in rear of a rock or in a hole, and they always very amiably offer some to the officers, who must never refuse, for it hurts them. Moreover, no one and nowhere does a Russian refuse tea.

"A soldier knows always how to take care of himself in difficult times. He can find fuel and bedding in a trice, and, if necessary, food. An officer, as far as these comforts are concerned, can never get lost with a soldier.

"At the same time, the carelessness of our soldier is wonderful. He has to be looked after like a child. This was especially hard in the positions during the night. If the soldier did not fire, he slept. And it is not always safe to sleep at a distance of 300 to 400 paces from the enemy.

"At any rate the soldier thinks that the company commander has to watch for him and that he does not need to bother.

"Notwithstanding various unfavorable conditions of actual war, it is impossible not to wonder at the marvelous *esprit* reigning among the troops after the retreat from Liaoyang. There was not even a shadow of the impression which ought to pervade a 'defeated' army.

"The retreat was made calmly, without haste and anxiety. When crossing the Liao River, the infantrymen began such a romping, pushing each other into the water, and splashing, that it was difficult to believe that the regiment was under fire the day before and lost during the preceding days about half of its contingent.

"In bivouac the singers assembled, not by order of the officers, but by their own initiative. The regiment lived its ordinary everyday life, taking advantage of the interval between fighting to rest and recuperate. I cannot pass on without mentioning the especially lofty spirit of the Siberian regiments. The Siberians present a splendid warlike personnel, and earned an excellent reputation in the Far East. They have well deserved the name of 'Siberian Guards.'"

AT THEIR BEST IN BAYONET CHARGES

If the Russian soldier lacks adaptability, he loves force. The Russian believes in the bayonet. In Manchuria it was a permanent part of the gun, for the Russian soldier carried no bayonet scabbard. Captain Soloviev in discussing it says:

"Let us now take another phase of infantry battle, the most decisive of all, for which preparations are made not only for several hours but several days, and the result of which gives always a decided and final preponderance to one side or the other. I mean the bayonet charge.

"As a participant in bayonet charges, I had occasion to see how the bayonet in a few short moments took trenches, against which thousands of bullets were fired in vain for three entire

days. I have seen the condition of mind of the victorious soldier, noted his elation after a bayonet attack, and how decisive and relentless is the struggle from which emerge only the living victors and the dead vanquished. There is no middle path.

"Study the fighting records of the present war and you will see that almost every regiment has fought with the bayonet and that the regiments who were in the theatre of war from the beginning of the military operations have several times made and received bayonet attacks. It is sufficient to say that on September 29th and on October 1st and 3d, a bayonet fight was raging along the entire front of our enemy. Entire corps fought with the bayonet. Such facts cannot be disputed.

"The Japanese attacked our regiment at Liaoyang several times on August 17th and 18th. It is true that they suffered great losses from our fire, especially when they advanced in column formation. Their companies and battalions literally melted away, leaving whole heaps of dead behind. Several times, after having approached us to a distance of some 300 to 400 paces, the Japanese turned back in disorder. But on the other hand, in that same battle they more than once went so far as to charge with the bayonet, and fierce hand-to-hand fights ensued.

"If our soldier were not taught to look upon the bayonet as a final and inevitable recourse in each battle, he would probably abandon his position and not attempt to repulse the enemy with the bayonet.

THEIR POOR EQUIPMENT

The equipment of the Russian soldier added much to his difficulties in Manchuria; for example:

"The condition of the clothing, foot-wear, and equipment had no less influence upon the difficulties of the march and combat.

"The soldier's gray overcoat is the heaviest article of clothing. Sufficiently warm to protect the men from cold, in summer it is too heavy, and especially after a rain it is a great burden. But as there are no waterproof capes in the soldier's uniform some of the units did not part with their overcoats even with the advent of hot weather, and the soldiers were obliged to carry that burden.

"The foot-wear consists of heavy and easily torn boots, which were absolutely impossible in summer and in the mountains.

"On account of the difficulties of the campaign in the Far East, these boots, without exaggeration, may be said to have been transformed into heavy leaden weights. In walking over the slippery hills the soles slid and the feet slipped in different directions. Instead of two steps one had to make three. Moreover, they are airproof and the foot was covered with perspiration, and a soldier's wet boot is hard to dry.

"However, some organizations left the overcoat in the storehouses, preferring to get wet through, and even to freeze, to carrying along such a burden, and the boots were replaced by low, leather sandals. But no one has endeavored to replace the biggest burden, the greatest obstacle to free movements of the soldiers in battle and on the march—we mean the unwieldy clothing bag of their equipment.

"These clothing bags tie the soldier down; they cut and hurt his shoulders; they change position on the march and knock against the legs on the run, often throwing the men down; during the ascent and descent of hills they pull the men back; when lying down the soldier must manipulate his clothing bag, which impedes him from finding an easy position; when rising he has to gather up and refasten the clothing bag, which has turned to one side; when he creeps it drags on the ground and is caught by objects on the road.

"The disadvantages and inadequateness of our equipment were amply demonstrated in the late war. When ascending the hills, even a lightly dressed and equipped officer felt, when midway up, that his breath was going fast, and dark rings danced before his eyes from the strain and heat, while his muscles were trembling like overstrung wires. The heavily laden soldier could hardly push one foot in front of the other, and went on automatically, until he lay down exhausted, notwithstanding the whistling of bullets and the exhortations of his officers.

"More than one soldier fell during such moments, struck down by the heat, with a blackened tongue and upturned eyes. And how could this have been helped? The last drop of water has been drained long ago and the battle does not wait. Thus they were left to die under the burning sun.

"During the Liaoyang battles some of the troops which had not yet been entrained lost in this manner on marches and countermarches more than half of their contingent. There were companies which reached their destination with only 15 men."

The Russian army has numbers, courage, and endurance. Despite the fact that it was operating at a great disadvantage, it is fair to say that in Manchuria it was beaten by the better preparation, quicker intelligence, and better strategy of the Japanese. The deficiencies of the Russian army were shown as plainly as the deficiencies of the British armies were shown in South Africa. It is a question how far the deficiencies have been overcome. Since 1905, new men have been in control. The Grand Duke Nikolas and General Sukhomlinoff are reputed good organizers and good soldiers. With the experience gained ten years ago and with the veterans of that war available the Russian armies should make a much better showing now in a country with which they are familiar and near their base of supplies than they did ten years ago in Manchuria. Yet on the other hand, the German army in Germany is a harder antagonist than were the Japanese in Manchuria.

THE WAR FEVER

READING WAR BULLETINS IN VIENNA

THE DAY'S WORK OF A SOLDIER

A COMBINATION OF PACK HORSE AND DAY LABORER — HOW MEN ACT IN BATTLE

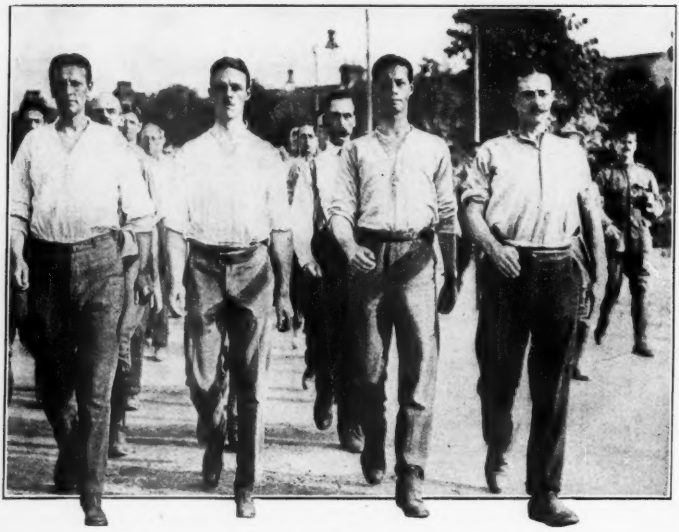
"MY THREE brothers are in the army," said the head waiter. "I hear nothing from them; they may be dead; but if they are living they march, march, march for France. Thirty-six men went from this restaurant to march for France. That is the soldier's work, to march.

"The great Napoleon won his victories because the Grand Army could outmarch the enemy. It is the same to-day. War never changes. Only weapons are new. Yet it is not the weapons, but the men who handle them, who win victories.

"It is the same in times of peace. I served my time in the army. We marched. As soon as we were mustered in we began to march. At first the distance was short; but each day the road was longer. Soon it was nothing for us to start at 5 o'clock in the morning and march thirty kilometres (18 miles) in the forenoon. In the spring and at the manœuvres we marched forty to fifty kilometres (27 to 31 miles) a day for several days in succession. Our crack regiments could do better than that; oh, much better. Yes, and we always carried our full kit—rifle, knapsack, ammunition and all—about fifty-five pounds. Besides, we carried wood for our fires. That was quite a different matter from a saunter for pleasure without a burden.

"In passing through a town we closed up our ranks, got in step and the band played. In the country we marched at ease, not trying to keep step, carrying our guns as we wished, on either shoulder or by the strap. We unbuttoned our collars. We chatted and joked, for the Frenchman is light hearted. The officers fraternized with us, for in France all are equal. I have seen our lieutenant take the knapsacks of two men at once who were showing signs of falling out from exhaustion, and carry them for five hundred yards, at the same time encouraging the men to brace up.

"We sang a great deal, the officers joining us. We sang "Panpan l'Arbi," "Sambre et Meuse," which is a fine march that our fathers sang in the dark days of 1870. Also we sang, "As-tu vu la casquette du père Bugeaud?" That was about a general who lost his helmet in a fight with the Arabs. And we sang, "J'ai perdu la clef de 'fa' de ma clarinette." That was just a jingle of nonsense—"I have lost the 'fa' key to my clarinette." Then the next time it would



THE FIRST DAY'S WORK OF THE VOLUNTEERS

TRAINING BRITISH PROFESSIONAL MEN TO BECOME CAVALRYMEN

To this they are marching in dead earnest for although the retreat to Paris and the subsequent advance may have seemed slow on the map there was many a French regiment doing twenty and twenty-five miles a day in full marching order and fighting in between whiles.

This means that every man turns himself into a pack animal. Every infantryman is loaded with fifty or sixty pounds of kit, including his rifle, intrenching tool, extra clothes, cooking equipment, etc. A healthy man unincumbered can walk four miles an hour. It is a good gait. But a soldier loaded with a third his own weight and moving in large bodies does very well if he averages two and a half miles an hour. Where roads are narrow or bad the men in front delay those behind, and almost always there is mud or dust to contend with. The dust of thousands of shuffling feet, of men and horses, can be a blinding, choking cloud that adds much hardship to a march; and in mud the weight and balance of a pack makes marching a constant strain. In the bad roads in Manchuria the Jap-

be, "I have lost the 'sol' key to my clarinette," and so on for every note in the scale. Then back to the beginning, and all over again, roaring it out as if it was the most solemn thing in the world."

Now the French are singing a song they learned from the English, "C'est loin d'ici a Tipperary." It begins, "Adieu, Piccadilly, adieu donc Leicester Square."

GOING AFTER THEIR UNIFORMS

AUSTRIAN RESERVISTS HERDED TO HEADQUARTERS BY AN ARMY OFFICER

anese soldiers, men five feet three inches high, carrying a 55 pound load, did not make more than two miles an hour.

"The hardest work a soldier has to do, and the most of it," said an Englishman who saw service in the Boer War, "is marching.

"British army authorities attach great importance to fitting each man properly with boots, but even so, if you are not both careful and lucky your feet get sore, and then life is prolonged misery. I always carried a piece of soap on the march with which I soaped the bottom of my socks outside each morning before starting, unless we were routed out in too great a hurry. It was the best preventive of sore feet I have found.

THE CALL TO THE COLORS

FRENCH RESERVISTS MARCHING THROUGH THE STREETS OF PARIS TO JOIN THEIR REGIMENT

"The worst feature of marching in the Boer War was the thirst, for the heat and the dust together seemed to set a man on fire. There wasn't always a running stream at hand whenever you wanted a drink. Besides, drinking isn't good for a man while on the march. The officer who knows his business will not allow his men to drink much while on the road. They take a drink before starting, and they can drink all they please when the day's march is done. Between whiles the contents of the water bottle are only used for gargling the mouth.

"The occasional fights were a positive rest between marches. I do not mean to say that I enjoyed a battle, but there was some physical relaxation.

OFF TO THE FRONT

A PART OF THE GERMAN "NATION IN ARMS" READY TO FIGHT

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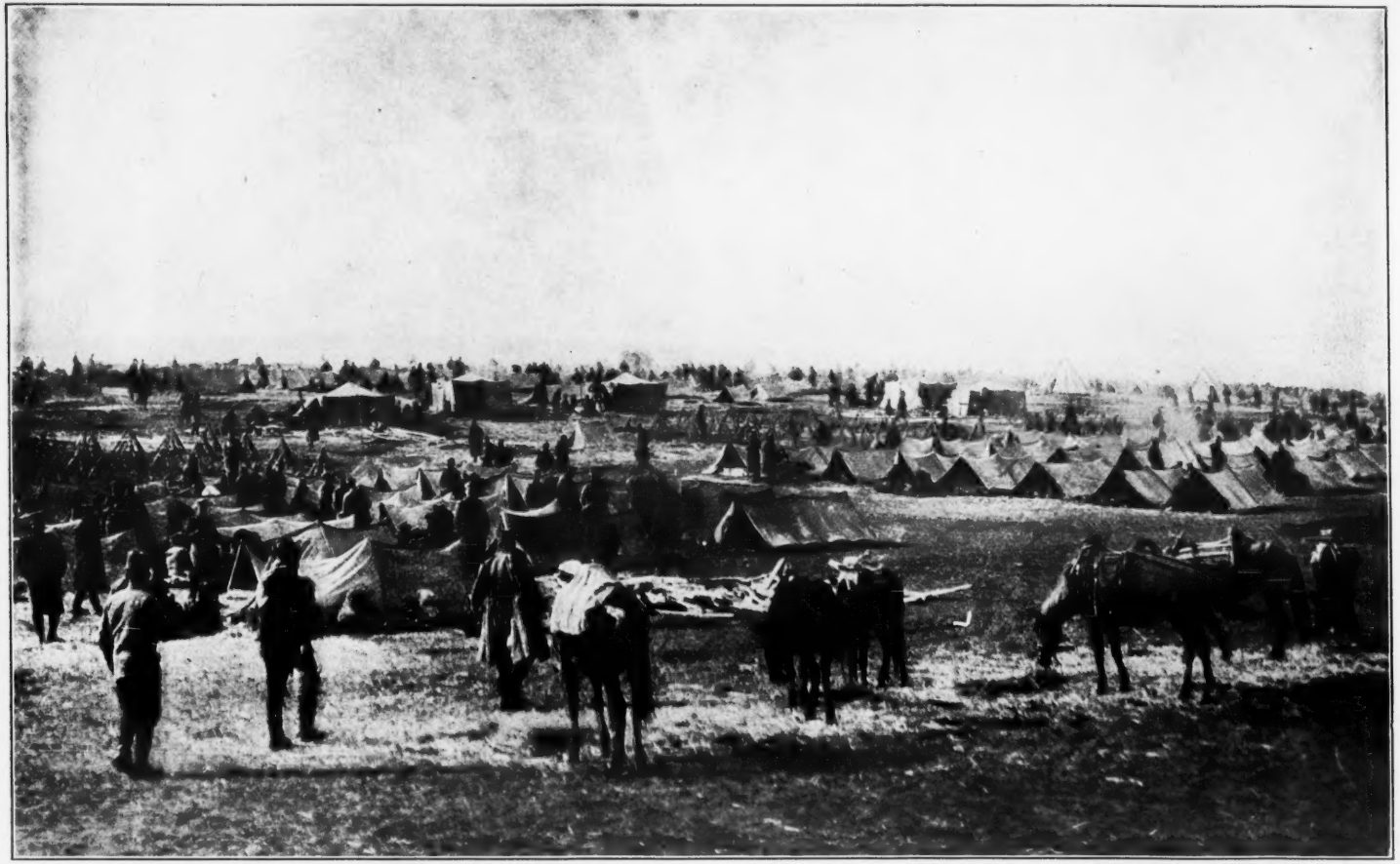

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AN ARMY CAMP AS IT LOOKS IN WARTIME

THE SERVIAN ENCAMPMENT AT USKUB DURING THE BALKAN WAR. DIRT, DAMPNESS, AND VERMIN ARE ALMOST UNIVERSAL DISCOMFORTS AND DANGERS OF THE UNPICTURESQUE ACTUALITIES OF WAR

Photographed by James F. J. Archibald

WHAT IT MEANS TO "MOBILIZE"

IN MODERN TIMES MOBILIZATION IS QUICKLY ACCOMPLISHED, EVEN IN RUSSIA, BY THE USE OF RAILROADS. THE COMMON SOLDIER'S CONVEYANCE IS USUALLY A FREIGHT CAR, IN WHICH THE SEATS ARE PLAIN BOARDS OR A FEW INCHES OF STRAW

That marching really bulks as large in the soldier's day's work as these men, speaking from the abundance of experience, asserted may be gathered from paragraph 331 of the Field Service Regulations of the German Army:

"Marching constitutes the greater part

WARTIME LUXURY

THESE FRENCH SOLDIERS HAVE THE UNUSUAL GOOD FORTUNE TO TRAVEL IN PASSENGER COACHES

"AN ARMY FIGHTS ON ITS STOMACH"

A GERMAN SUPPLY TRAIN TRAVELING THROUGH A PARTLY BURNT BELGIAN VILLAGE

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of the work performed by troops in war. The success of every operation depends upon the unfailing execution of marches."

Other nations impress this precept upon their soldiers, though none, perhaps, so zealously as France. The endless practice marching is not merely to be able to get over the ground but also to develop powers of endurance that will be needed in battle. The larger the body of men on a march the slower their gait. Under ordinary circumstances, when no urgent need for speed exists, twelve to fifteen miles is considered a fair day's work.

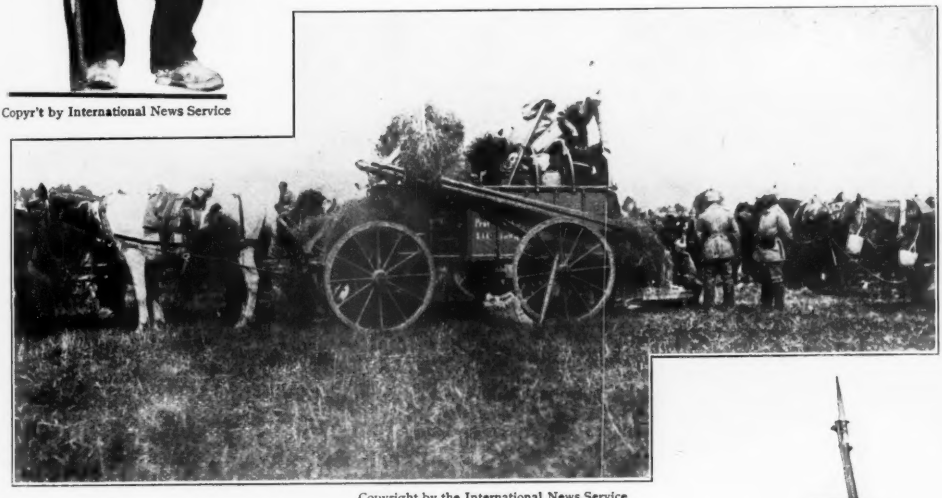
When the infantryman is not marching he is usually digging, for since our Civil War it has become more and more the custom for armies to intrench every position which they occupy in the face of the enemy, even if the positions are to be held only for a short time. In the 125-mile retreat from Mons to Paris, it is a fair assumption that there were many men in the British army who did not spend a waking hour, except when they were under fire, without marching or digging. There are literally hundreds of miles of trenches dug, by both armies along the Marne, the Aisne—everywhere that troops have stopped. Most of these trenches are deep enough for a man to stand in and only wide enough to give him room to use his gun.

An infantry soldier when not actually under fire is a cross between a pack animal and a day laborer. And the citizen soldiers of France and Germany have had to work hard to become proficient in marching, in trenching, and in fighting and all the things which must be done to keep efficient.

Every able-bodied German is potentially or actually a soldier, and yet, except for the officers, there are no professional soldiers in the whole giant military empire. We speak loosely of Germany's immense army standing, yet Germany's permanent fighting force is a negligible quantity. The German army is constantly changing in personnel and is permanent only in that it is constantly renewed and is built up about a permanent equipment and under permanent officers. The German army is the German nation in arms.

In the training, the new recruit, whatever his station in life, is at first given menial tasks. His first military duties may be the chores of bootblack or scullion. He is learning his first lessons in discipline—the primary principle of the whole great system.

He is then taught how to stand. There is just one right way to stand, and the re-



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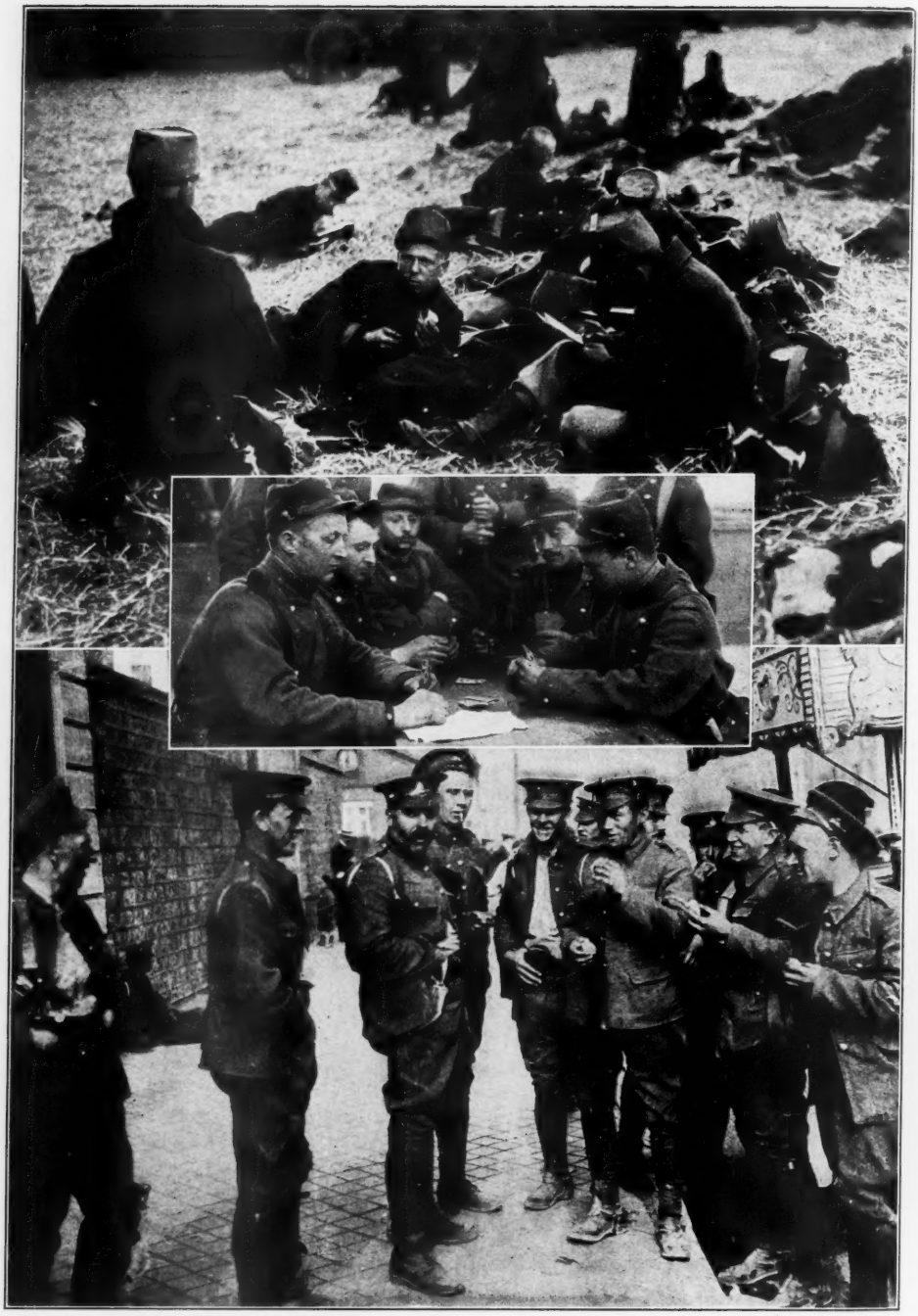
MAKING CAMP

UNLOADING A FIELD SUPPLY WAGON



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THE LIGHTER SIDE OF SOLDIERING

WRITING HOME DURING A LUNCH-HOUR HALT; A GAME OF CARDS IN BARRACKS; BRITISH SOLDIERS OFF DUTY

cruit must master that if it takes a week. If he has grown a bit one-sided from working at a desk, so much the worse for him. Then he is taught how to walk with equal precision; all mannerism must disappear from his gait and his muscles must conform to the regulations.

At length he is instructed in marching, simple evolutions, and the famous and much ridiculed goose-step. It is probable that this step is a survival of an ancient custom founded on an actual need. The Macedonian phalanx, the Roman legions, and all military bodies which were trained to advance in extremely close formation, must have developed some sort of special lock-step to avoid treading on one another's heels. At any rate, Frederick the Great introduced such a step for that purpose, and it is this which has been handed down to the present day together with other treasured military customs and traditions and the persistent tendency toward the close formation in an advance. The goose-step is today used as a sort of salute; when a group of soldiers pass an officer they immediately fall into this unnatural and by no means easy gait. It is also perpetuated because of its practical value as an exercise for strengthening the muscles of the leg.

THE FIELD FORGE

The regular infantryman in the German army receives the munificent salary of 5½ cents a day. His uniform and accoutrements are furnished by his Government, but he has to supply his own luxuries—his tobacco, extra food, shaving materials, and shoe polish. Every four days he is given a large loaf of coarse black bread which is seldom eaten until the soldier learns to observe the pangs of keen hunger. Every morning he is given a cup of black coffee and a roll; butter and sugar he must provide for himself. At noon he receives meat and veget-

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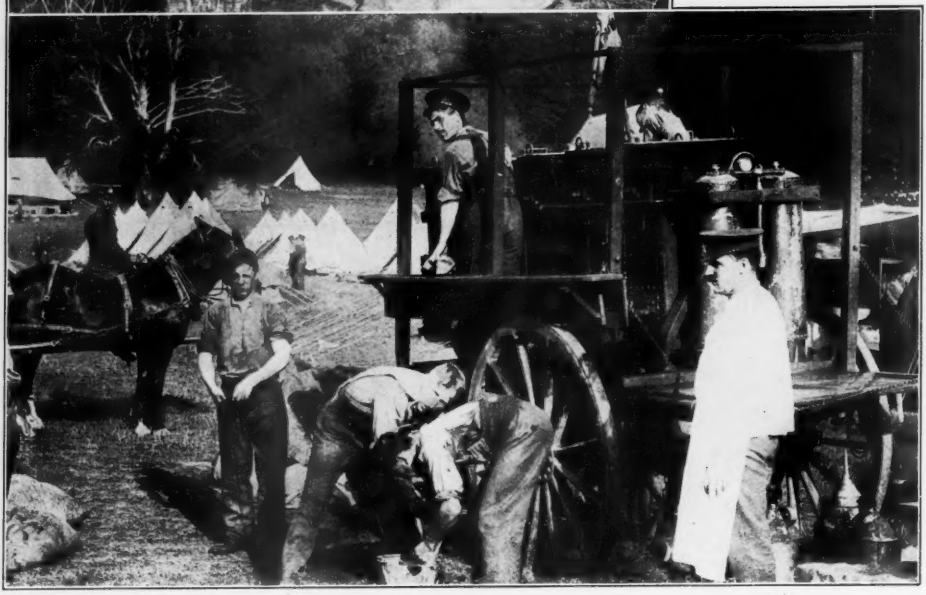
A WORKADAY SIDE OF SOLDIERING

TEARING UP COBBLESTONES TO IMPEDE THE GERMAN ADVANCE ON ANTWERP



ables in moderate amount, or a meat stew. In the evening soup is served which helps to soften the black bread. The majority of German soldiers, however, are able to prepare in advance to relieve these hardships by saving money for an occasional change of diet.

In war times the soldier has usually plenty of sustaining food of the same general character. Traveling field kitchens keep up with him on the march and give him a hot meal at least once a day. Yet once in a while the commissary breaks down and the fighting, digging, walking private eats his emergency ration and then goes without. Many of the German stragglers who were caught by the French advance from Paris were footsore, hungry, and worn out.

This present war has not gone on long enough to bring the soldiers down to the final low level. They have not yet gone into dug-outs or huts for winter quarters. Medical science now prevents the scourges of typhus and dysentery that used to sweep through camps, but it has not yet gotten rid of the dirt and vermin

HOW SOLDIERS ARE FED

HANDING OUT PLATES FROM A FIELD "BUTLER'S PANTRY"; UNLOADING FOOD SUPPLIES; AND A PORTABLE CAMP KITCHEN. THE COMMISSARIAT IS OF FIRST IMPORTANCE IN THE EFFICIENCY OF TROOPS IN THE FIELD, AND THIS WAR IS NOTEWORTHY FOR THE IMPROVEMENT OVER THE PAST IN THIS BRANCH OF MILITARY OPERATIONS, MADE POSSIBLE LARGELY BY THE USE OF MOTORS

that are likewise incidents of prolonged camp life. The marching, intrenching, picket duty, monotonous food, discomfort, and uncleanliness, make up much of the day's work of a soldier. The occasional excitement of battle and the knowledge that he is part of the most interesting game for the highest stakes in the world—this and the good comradeship, make up for the otherwise squalid existence. The grim realities of every day soldiering are chiefly hard work and discomfort. The part that flares up in the headlines are the exceptional days to which all the toil and preparations are dedicated.

Even when this final test comes the demeanor of soldiers in battle is astonishly simple. In the words of one who has been many times under fire:

"He who expects to see something out of the ordinary, something heroic, on his face at these decisive moments, something picturesque and dramatic, is greatly mistaken. The soldier remains the same ordinary man as before, only his face is somewhat paler and its expression more concentrated and serious. His nervous and rapid firing betrays the inner struggle.

The principal characteristics of modern battle fields is the invisibility of the enemy.

"When I went into battle for the first time, I could determine the direction and position of the enemy only by the whistling of the bullets, although I was with my company under shrapnel and fierce rifle fire. When I reached the crest of the hill, I began to scan the horizon to see whence that hail of fire was showered upon us.

"I looked in vain for traces of trenches or fortifications and expected to see somebody. I saw nothing and nobody. I was told but one thing before the battle: 'Occupy the hill to the right.'

"Scanning the locality I saw at a distance, 1,750 yards, a long wavy range on which it seemed that there was not a soul and yet it was from that point that the bullets were flying. We determined the approximate range of that hill and opened fire against it.

"This invisibility brings about a sense of insecurity and irresolution. It often happened that a man passed several days on a position and was put *hors de combat* without having seen the enemy.

"Another peculiar-

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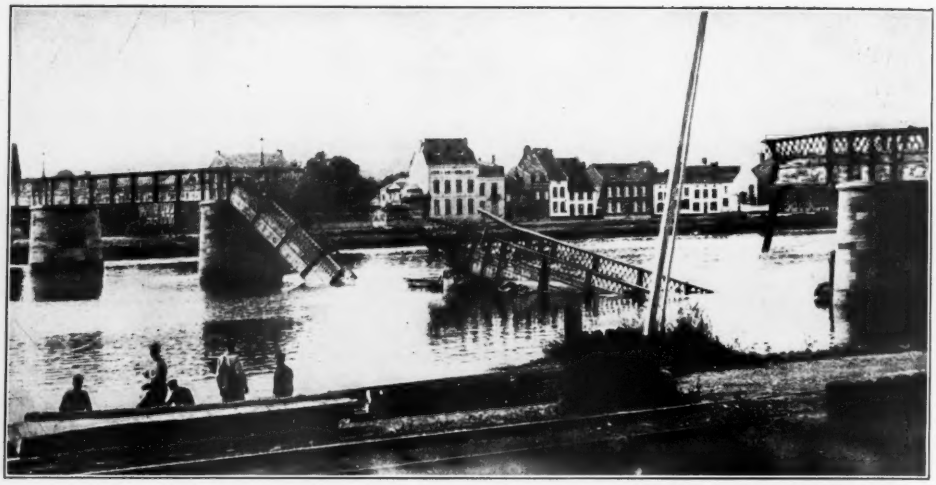
AN EMERGENCY SUPPLY OF BREAD ON A WARSHIP



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SOLDIERS' WORK AS DESTROYERS

RUINS OF THE BRIDGE ACROSS THE MEUSE AT NAMUR, BLOWN UP BY THE RETREATING BELGIANS

ity lies in the long distance at which the shots tell. A unit, separated from the enemy by a range of hills, begins to incur losses at a distance of several thousand yards. Before that unit opens fire and can at least see the hills from which it is being fired at, it has already become somewhat disorganized materially and morally, and consequently cannot go into battle perfectly fresh. It is sometimes necessary to remain for several hours under such preliminary fire, whence arises fatigue, both physical and moral, long before the period of actual combat.

"The duration of modern battles, sometimes

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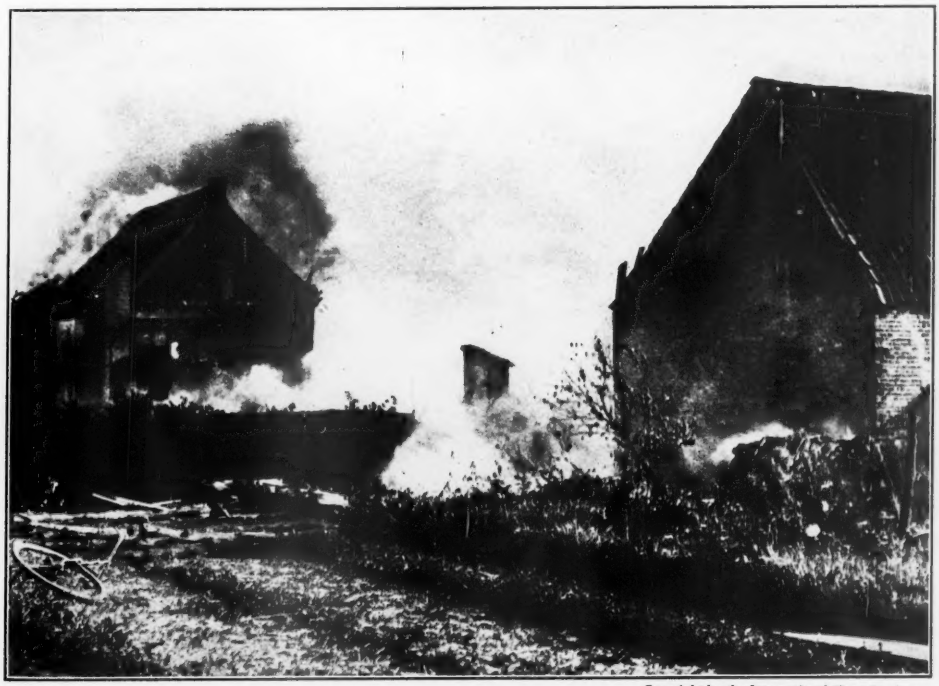
ONE OF THE TASKS OF A SOLDIER

TO DESTROY AN ENEMY'S CITY. THE AVENUE DER MAASTRICHT IN VISE, BELGIUM, AFTER THE GERMAN INVASION

reaching two weeks, imposes a terrible tension on the mind, and acts exhaustively upon the physical condition of the men. A great supply of moral and physical strength is needed to stand for several days uninterruptedly the conditions of life in positions. The conditions of that life are such that one must fire, drink, eat, sleep, and die without knowing one minute's rest, by day under fire, and by night under the nervous strain of expecting a sudden attack at any moment, in utter darkness, sleepless, not being able to light even a cigarette without drawing a hail of bullets at each flash of the match.

"Add to this constant losses in wounded and killed. The base of the hill in a few hours after the occupation of the position is covered with fresh burial mounds and their

THE REMAINS OF A GUN TURRET AT LIÈGE



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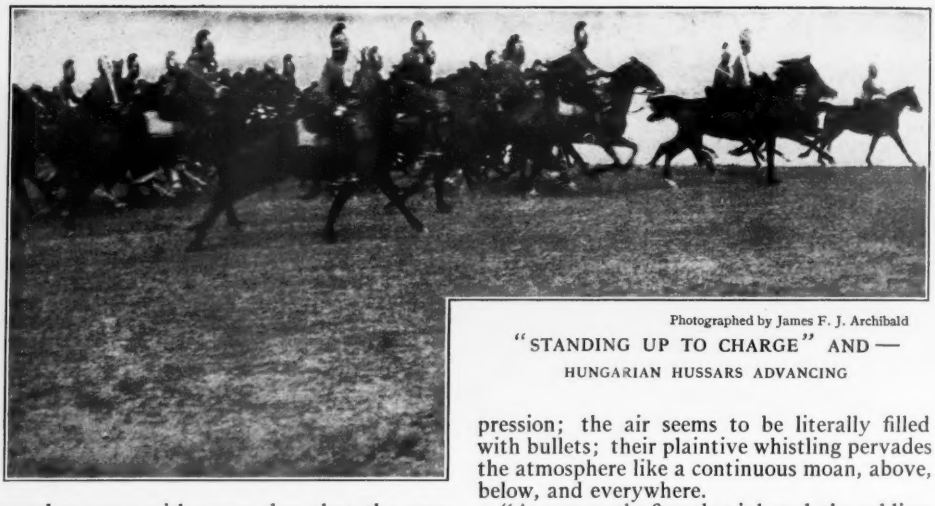
SOLDIERS BURNING COTTAGES TO CLEAR THE PATH FOR THE GUNS AT ANTWERP



Photographed by James F. J. Archibald

"STANDING UP TO CHARGE" AND —

HUNGARIAN HUSSARS ADVANCING

number grows with every day that the campaign continues.

"It is difficult to depict in words the impression made upon an inexperienced man by battle. The first projectile bursting alongside or the first bullet hurtling past awakens such varied feelings and impressions.

"Modern rifle fire produces a strong impression; the air seems to be literally filled with bullets; their plaintive whistling pervades the atmosphere like a continuous moan, above, below, and everywhere.

"As soon as the first shot is heard, the soldiers grow serious; jokes and conversation cease. At the given order all march bravely as during manœuvres.

"The courage and calmness with which the soldiers go into battle produce a strong impression.

"The infantry soon grows accustomed to

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—"LYING DOWN TO FIRE"

THE POMP OF PARADE, AND—
A GERMAN CAVALRY CHARGE AT MANŒUVRES

rifle fire, but the artillery fire, especially the shells, produce a decided impression. It seems to me that this is not due so much to the losses inflicted by artillery as to the ear-splitting noise produced by the explosion of the projectiles. The effect is produced only on the ear, but it is strong. The shells have a specially powerful effect upon the inexperienced, and the shrapnel upon those unaccustomed to battle. The young soldiers throw themselves face downward at each bursting of a shell. Thus the infantry, which suffers most from rifle fire, pays least attention to it; the artillery men, on the contrary, are much impressed by rifle fire. This may be explained by the fact that the men are accustomed to their own arm. In addition to this, the whistling of the bullets also produces an impression upon a battery, because it notifies the artillerymen of the approach of the enemy and consequently of danger."

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— THE PROSAIC WORK OF WAR
BRITISH SOLDIERS IN THE TRENCHES IN BELGIUM

Even when he is hit the soldier is apt to take it as other men take the lesser misfortunes of other businesses. An officer whose cheek was torn off by a fragment of a shell remarked, "Thank God I don't feel as bad as I look." An Irishman received a flesh wound. "Ah, the brutes have hit me," he said. "Here's wan back at thim." Almost as he fired he received a second wound. "Well, if they haven't done it again." Then a third bullet struck him. "That's number three. The blackguards might lave a party alone after they've hit him wance. I'll teach thim better manners." Thereupon he emptied his pouch at the enemy before his wounds got the mastery.

How to march, how to intrench, how to live in camp without getting sick, how to fight in open order, how to spend a week in the trenches under shrapnel fire—these things are a normal part of the soldier's day's work in war time.

The pomp and glory of war are left behind as peace fades—these are phantoms of the parade ground. Field service in real war has, indeed, its lighter side, but at best it is a composite of grime, harsh exertion, exposure, discomfort, and extreme danger. At the worst it is a nightmare of horrors—sickness and anguish of spirit, wounds and death. Most of the men who have painted the glory of war have been stay-at-homes. Vereshchagin, who saw it, painted its horrors.

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INVALIDED HOME

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PRISONERS OF WAR

GERMAN RESERVISTS IN THE ENGLISH CONCENTRATION CAMP AT DORCHESTER

KITCHENER IN ACTION

A MAN OF DEEDS, EFFICIENT AND SILENT—HIS DISLIKE OF RED TAPE AND PERSONAL PUBLICITY—HIS ACHIEVEMENTS IN EGYPT, SOUTH AFRICA, AND INDIA

KITCHENER of Khartoum, Secretary of State for War of Great Britain, does things that other men have talked of doing. This explains why, in all his sixty-four years, he has had but two vacations. The first was in 1888, when a Dervish bullet sent him home from the Soudan to recuperate. The second vacation was in 1903, when his horse shied against the side of a tunnel in India and broke its rider's leg. With these exceptions Kitchener of Khartoum has been so busy that he could not even spare time to be sworn in as a member of the House of Lords until thirteen years after he had been raised to the peerage. He managed it at last only because he happened to stop over in London between trains while on other business.

Twice his industry has earned the thanks of Parliament, accompanied by more practical expressions of gratitude in the form of a grant of $150,000 on the first occasion and of $250,000 on the second. Between whiles he has had bestowed upon him pretty much all the honors at the disposal of his king. Every fresh recognition of his worth has been accompanied by an intimation that if he hurried he could catch the next steamer to some place or other where a new task awaited him. Kitchener always caught the steamer, finished the job to the entire satisfaction of everybody, and hurried on to the next.

Once in his life Kitchener was associated with a failure. That was when he made his first attempt to save France from German arms. While he was still a student at Woolwich, England's military college, the Franco-Prussian War began. Kitchener enlisted in the Army of the Loire, commanded by General Chanzy who, some military writers maintain, was the one man who could have saved the situation for France if the politicians had left him alone. Even this experience taught Kitchener a lesson that he turned to good account a few years later, for when he started on his march to Khartoum he took precautions to prevent interference with his plans. According to a staff officer who made that famous march with Kitchener, if anything had happened to the commander it would have taken the War Office several years to find the Egyptian army.

But times have changed since 1870, and Kitchener has changed with them, as the result of the second German invasion of France proves.

All that Horatio Herbert Kitchener has achieved has been by his own effort. He started in life without the aid of position or influence. The son of a retired army officer in comfortable circumstances, he managed to scramble into Woolwich by a very narrow margin, according to F. E. Kitchener, a cousin who claims to have had something to do with his education. He did not stand very high in the list, but contrived to obtain a commission in the Royal Engineers, where he attracted no notice. He secured his first appointment, which happened to be on the archæological survey of Palestine, because he knew how to take photographs.

This assignment brought Kitchener into contact with native soldiers, gave him an insight into Oriental character and an opportunity to learn the difficult Arabic language, all of which was to be of practical help in enabling him to add more than a million square miles of territory to the British Empire less than twenty years thereafter.

His knowledge of Arabic led to the inclusion of Kitchener in the small group of British officers to whom were assigned the task of reorganizing the Egyptian army in 1882, then an army only in name. From second in command of a regiment he rose in a few months to the command of the cavalry. By 1884 he began to be mentioned in dispatches. In the same year he commenced his large collection of medals and titles. By 1888 he was adjutant general; two years later he was sirdar.

Having made his own way without the aid of influence, Kitchener has always been noted for being absolutely impervious to such considerations. When he was preparing for his expedition to Khartoum he was fairly overwhelmed with applications from officers who wanted to go along. They brought all sorts of influence to bear from all sorts of people. One candidate, the scion of a distinguished house, arrived in Cairo with a letter from no less a personage than the Prince of Wales, which was in effect a command to employ the bearer in the forthcoming expedition. Naturally the gentleman regarded his position as assured and made all preparations to go with the sirdar. But after waiting around Cairo for several weeks without hearing one word about his expected berth he reached the reluctant conclusion that Kitchener preferred to make his own appointments and returned to London accordingly.

Kitchener has never brooked interference with his choice of subordinates. An indispensable attribute of greatness is the ability to choose the right man for a given task. Kitchener is sure of himself in this particular, as in others. He selects his own aides, trusts

them implicitly, and is trusted and obeyed in return. Indeed, the man who doesn't obey does not stay around Kitchener very long. Failure for any reason whatsoever is something Kitchener never excuses. On the Khartoum Expedition an officer ordered to execute a certain movement pleaded that he was suffering from sunstroke.

"What does he mean by having sunstroke?" demanded the sirdar. "Send him back to Cairo at once."

Instead, the chief of staff, who happened to be a friend of the delinquent, sent him a message telling him he was not sunstruck at all, and that, anyway, the healthiest thing for him to do was to execute his orders at once. The advice was followed.

The Anglo-Egyptian Soudan is a region in Africa that extends from north to south about 1,200 miles in a direct line, and east to west about 1,000 miles. In 1881 came the Mahdi, a half cracked fanatic claiming to be the expected Mohammedan messiah, who overran the country. Seventy per cent. of the population perished by war, disease, or starvation, and the country relapsed into desert. The Mahdist hordes were a constant menace to Egypt. Others had tried to reconquer the Soudan but had been defeated by the Dervishes and the desert, a combination that seemed invincible.

Kitchener believed he could drive away the barbarians and bring peace and security to Egypt and the Soudan. As he had not then had an opportunity of showing what he could do the Government doled out money with a niggardly hand. By skimping and scheming and requiring every one of his small staff to do three men's work Kitchener contrived at last, without the concurrence, or even the knowledge, of London to prepare for the great expedition. The material included Maxim quick-firing guns, then untried in war. London was not alone in its ignorance of impending events. The commanders of the units scattered from Cairo to Kassala only knew, and were only allowed to know, what they saw at the extremity of their sun-baked noses. They did as they were ordered. When the movement began they found this was all they had time to do.

But Kitchener knew all about everything. To quote an anonymous "Staff Officer," who accompanied the expedition:

"Kitchener is one of the hardest and most accurate thinkers I can name. He is always thinking; not meandering aimlessly through a wilderness of casual imaginings, but thinking up and down and round and through his subject, planning every move, forseeing every counter move, registering every want, forestalling every demand, so that when he conducts a campaign with that unerring certainty that seems to recall the onward march of destiny luck has had very little to do with that affair, for Kitchener has arranged that everything shall happen as it does happen."

The same Staff Officer adds that Kitchener was the only British general who ever tried to wage war without orders, forms, or papers of any kind. "Kitchener's office stationery consisted of a sheaf of telegraph forms which he carried in his helmet and a pencil which he carried in his pocket. He seldom read an official letter and never wrote one."

Kitchener's genius for organizing so carefully that failure is impossible was strikingly manifested in his campaign against the Dervishes. Between Wady Halfa, the end of navigation on the Nile, and Omdurman, the capital of the Dervishes, stretched four hundred miles of trackless, tropical desert. Without adequate transportation an expedition against those savage fanatics would have been madness, as the British and Egyptians had already learned at bitter cost. Cataracts in the Nile interrupted navigation. Camels might do for the meager stock of Arab traders, but not for an army in time of war. A railroad across the desert had been suggested but never seriously considered because the undertaking seemed too formidable.

Kitchener realized that without a railroad he could do nothing. When he announced that he would build the road everybody concerned, and a good many who were not, showed him how utterly impossible it would be to build a railroad across the desert, or to operate it if it was built, because it takes water to run locomotives, and deserts are chiefly distinguished for their lack of water. Kitchener selected as his chief engineer a young lieutenant, a French Canadian named Girouard, who had been employed in the construction of the Canadian Pacific, and told him to go ahead. The rails were laid at the rate of a mile to three miles a day, a well-boring detachment found water at the third attempt and thereafter provided an adequate supply wherever it was needed, some old scrap heaps were cobbled up for locomotives, since the funds available did not permit the purchase of enough new engines, and in just eighteen months 344 miles of military railroad were in operation. Atbara and Omdurman were fought, the untried Maxims justified the faith of the sirdar, and Mahdiism was destroyed.

Kitchener's first act after entering Khartoum, where the garrison and its commander, Gordon, had been massacred by the Dervishes, was to hold a memorial service for Gordon. His next was to send a message to England asking for funds to found Gordon Memorial College at Khartoum to educate the natives.

"A responsible task is henceforth laid upon us," said he. "Those who have conquered are now called upon to civilize."

The response was instant and generous. The college was built and is now flourishing. Kitchener began the work of reconstruction which was carried on by others after he left. The transformation is best described in his own official report on a visit to the Soudan in 1913:

"When we conquered the Soudan hardly a single inhabitant had any money, and, with the exception of the fighting men, the whole population was practically starving. Nothing, I think, strikes one more in revisiting the Soudan to-day than the great increase which has taken place in the individual prosperity of its inhabitants. This increase of prosperity, which has resulted from careful administration, has been so equally divided through the entire population that it is not too much to say there is now hardly a poor man in the Soudan. Unlike the Egyptian fellah the Soudanese cultivator is not bound down by debts and has not, therefore, to struggle to meet the exorbitant interest of the usurers who prey upon this class in Egypt. In Soudan the benefits of peace have been fully reaped by the cultivators, and increased facilities of communication [chief of which was the railroad built by Kitchener to defeat the Dervishes] have brought markets hitherto undreamed of to their doors. The development of the rich products of the country has been carefully fostered and a golden harvest has been brought in which has remained in the country. It is, therefore, not surprising that the people are contented, happy, and loyal."

HIS HATRED OF RED TAPE

It was in this same Khartoum campaign that Kitchener's abhorence of red tape was first impressed upon whom it concerned. A certain general, who may be called Fussyman, insisted upon issuing a daily order with all due forms and ceremonies. So importunate was he that in sheer weariness Kitchener at last dictated an order. Buoyed up by a blissful sense of importance Fussyman hurried off to have it duly copied, registered, duplicated, sealed, signed, and delivered in the good old style. Meanwhile Kitchener strolling out, accidentally met Broadwood, his cavalry commander.

"Oh, Broadwood," exclaimed Kitchener in his softest drawl, "will you kindly take four squadrons and a couple of guns and push on forty miles to clear up the situation, and start in half an hour?"

"Very good, sir."

As the cavalry was jingling out of camp Fussyman came out of his tent with the order of the day. Upon finding that Broadwood's orders were totally different from the formal version entrusted to him by the commander, Fussyman gave Kitchener up as hopeless.

Kitchener's detestation of theatrical effect is no less fervent than his hatred of red tape. This was indicated at the battle of the Atbara. After the English had rushed through the Dervish lines Kitchener chanced to ride up and meet the lines reforming. He was received with a frenzied roar of applause. Obviously the sirdar would rather have been anywhere else just then. He had to be urged before he would say a few words to the men, words which were drowned by a fresh outburst of cheers.

This and other incidents of the same character have led to the invention of sundry apocryphal stories tending to show Kitchener's lack of human sympathy and general aloofness. For example, it has been said that he never spoke to a private soldier and never looked at one. The simple truth is that Kitchener lacks the tender solicitude in the private affairs of the average man which the politician displays just before election. Grim, stern, and forbidding he certainly is when those characteristics are required, but he is also sympathetic and considerate.

HIS AVERSION TO SELF-ADVERTISING

Aversion to self-advertising has not been softened by the passing years. When he was about to start for India to assume command of the army there after his fame had been increased by his brilliant achievements in South Africa, and the Nation could scarcely find ways enough to express appreciation of his services, Kitchener saw to it that the newspapers did not know when he was going to start. Even the railroad management did not know until twenty minutes before train time.

A representative of the Paris *Temps* discovered Lord Kitchener's hatred of publicity and, judging by what he said about his subject, the French journalist did not exactly enjoy the interview. The *Temps's* writer found the hero of Khartoum and South Africa "temperamentally offensive." His manner was not merely cold, it was "suffocating." Kitchener "stands in mute unwillingness to listen or to talk when one has at last gained an audience. He looks coldly through the visitor, never at him."

But Kitchener's distrust of reporters was founded upon experience. In a dispatch from South Africa to the war office he relieved his feelings in these guarded words:

"I do not approve the inclination to magnify an unimportant skirmish into a British victory that exists in the press, and though I find it difficult to control this, I do not encourage it in any way."

Kitchener resembles Grant in his ability to maintain silence when he has nothing to say, though he is talkative enough when he chooses to be. At a dinner party, for instance, or in the intimacy of his own room, he talks freely and as fascinatingly as might be expected of a man of his big mind and broad experience. But he has neither time nor taste for the idle gossip of clubs. He belongs to two clubs only: the United Service and the Junior United Service, and he is rarely seen at these.

Kitchener does not shine as a public speaker. Indeed, he has never made a speech that by any possibility could be avoided; still, there are occasions when a man of his position simply must go through the motions of making a speech. His return from South Africa was one of these occasions. He was met at the station by the Prince of Wales and all sorts of honors were heaped upon him. A speech he had to make at the Guildhall, therefore, was of transcendent

importance. The papers made elaborate preparations to record every precious word. The time came; Kitchener spoke for ten minutes—and said nothing.

The only form of public utterance in which Kitchener is at home is the official report. These reports are interesting to those concerned because he always has ideas to express.

With due respect to the *Temps's* reporter, Kitchener is by no means unapproachable, unless it be to designing newspaper men. Any one who has anything worth hearing to say always finds him an attentive and appreciative listener. That is one of the secrets of his success. Another is his tireless energy and continuous application to work.

After the conquest of the Soudan Kitchener had just gotten comfortably settled down to the constructive work in which he has been so brilliantly successful when he was ordered to South Africa as chief of staff to Lord Roberts, who was to assume chief command in the Boer War. There was no time to return to England. Kitchener met his chief at Gibraltar and proceeded with him to Cape Town. When he landed in South Africa the disorganization and confusion were appalling. It devolved upon him to bring order out of chaos and to take the leading part in organizing the army which Roberts led to victory.

HIS WORK IN SOUTH AFRICA

When Pretoria was occupied, Lord Roberts returned to England, leaving the chief command to Kitchener. The Boers were still in the field in such force that they even planned a raid into Cape Colony and a dash on Durban. Kitchener had to stifle both attempts, hundreds of miles apart, keep the Boers in check in the western Transvaal, strengthen his lines of communication, and devise an entirely new scheme of organization to cope with the guerilla tactics of the Boers. Besides conducting these complex military operations on a large scale over an immense territory, he had also to deal with subsidiary questions of the first importance, such as the care of more than one hundred thousand men, women, and children in concentration camps, the creation of a constabulary, the administration of martial law over an immense territory, the intricate problem of native labor, the management of the railroads, the return of the loyalist population driven out by the Boers at the commencement of the war, and the resumption of gold mining.

Kitchener performed these herculean labors with the same thoroughness that has characterized all his undertakings, and returned to London to find another task of almost equal magnitude waiting for him. This was the reorganization of the Indian army. Everybody concerned, including Lord Curzon, who had earned distinction as viceroy, recognized the urgent necessity for reorganization. Curzon himself was first to suggest that Kitchener be assigned to this work.

The moment the last lingering detail of the work in South Africa had been disposed of at the War Office, Kitchener sailed for India. With characteristic thoroughness he made a personal inspection of the entire northern frontier and of the army posts. Equipment was out of date, the organization was hopeless, everything was topsy turvy. The commander-in-chief, though supposed to be a member of the viceregal council, was really impotent, because there was a fifth wheel in the organization known as the "military member of council," who was supposed to have an equal voice with the commander, but who really had everything to say. Indeed, subordinates in the War Office had the power, or at least exercised the power, to veto or modify the commander's requisitions, as Kitchener soon learned to his vast amazement.

REORGANIZING THE INDIAN ARMY

When he proposed a scheme of reorganization that would transform the army into a modern fighting machine a perfect tempest broke loose. The viceroy himself led the opposition, ably seconded by the military member of council, army officers, and the press. Kitchener was no more disposed to brook opposition now than he ever had been. In a very few months the military member of council found it convenient to resign and his office was abolished. Next the viceroy had to resign. After that Kitchener put his reorganization plan through just as he laid it out. The army was completely made over, armed with the latest types of rifles and artillery, an adequate military college was established in India, and the way to promotion opened to natives, all in accordance with Kitchener's expressed theory that the armies of the various parts of the British Empire exist for the common purpose of maintaining the common interest by war. England now has cause to appreciate the wisdom of Kitchener's course. Without the thorough overhauling at Kitchener's hands the Indian army would not be able to render the service it is rendering in France.

India did not have to wait until 1914 to appreciate Kitchener's work. When he left the Peninsula, his task finished after seven years' hard labor, some of the wealthy natives held a meeting to raise funds for a monument to the great organizer. The very people who had at first opposed Kitchener's plans with such ardor received the idea with enthusiasm. Now an equestrian statue of Kitchener adorns Calcutta, and a replica of it, made in part of shells picked up on the battle field of Omdurman, stands in Khartoum.

Australia, which, unlike the mother country, has compulsory military service, was waiting for Kitchener's advice on creating an army. He visited the island continent, made a careful investigation, and drew up a memorandum which was accepted with enthusiasm and acted on with alacrity. Here are a few sentences which

may seem more or less pertinent to the future of a well-known republic:

IN AUSTRALIA

"In these days excellent fighting material and the greatest zeal, though indispensable adjuncts, are not of themselves sufficient to enable a force to take the field against thoroughly trained troops with any chance of success. Success in any technical career can only be achieved after thorough elementary grounding; and this is, perhaps, more marked in the military than any other profession. . . . The first and imperative principle of the enrolment and maintenance of an efficient citizen force is that the nation as a whole should take a pride in its defenders, insist upon organization being real and designed for war purposes only, and provide means for the proper training and equipment of officers and men. Unless these requirements be met no military system can be devised which will be other than an illusion and a waste of public funds."

From Australia Kitchener hustled back to Egypt, which was then very much in need of his services. Popular hostility to British rule was more accentuated and audacious than it had been for years. The people were neglecting business for politics and things generally were at sixes and sevens. "British Agent" isn't much of a title, but the man who holds that title is the real ruler of Egypt.

The day after the new British Agent reached Cairo, Italy sent an ultimatum to Turkey, and the next day after that declared war as a preliminary to seizing Tripoli. Kitchener had to maintain the neutrality of Egypt, nominally a part of the sultan's dominions, a task which was greatly facilitated, no doubt, by Turkey's fear that Egypt's annual tribute of $3,400,000, a most acceptable sum, would be cut off if any act by the Sublime Porte tended to disturb this neutrality, and quiet the disaffection. All this was done, schemes for draining the delta of the Nile, which had become waterlogged by too free use of irrigation, for eradicating cotton pests, for improving the educational system, for extending savings banks and encouraging thrift, for promoting better methods of cotton growing, for protecting the fellaheen from usurers, for reducing infant mortality, and a great many other things of the same character were evolved and put into effect for the permanent improvement of Egypt.

From these great creative enterprises Kitchener was called without any intermission to take supreme command, as Secretary of State for War, of all Great Britain's land forces in the greatest war in history. Ten hours a day he sits at his desk in the War Office working calmly, serenely, never hurried, never worried, for he never takes a fresh step until he is sure of the last and has considered all the possibilities involved. In such an atmosphere his subordinates can also work tranquilly and effectively, and they do.

THE "SYSTEM" OF THE GERMAN ARMY

AN EYE-WITNESS'S RECORD OF ITS AMAZING PREPAREDNESS AND EFFICIENCY ON THE MARCH—THE RUSH TOWARD PARIS WITHOUT A HITCH—DAILY MAIL SERVICE ON THE BATTLE-FIELDS—LITTLE BRUTALITY BUT RELENTLESS DISCIPLINE

BY

ARNO DOSCH

AT A cross-roads in southern Belgium close to the French frontier, I was invited one day late last August, along with several other American correspondents, to share the mess of a German cavalry command. It was high noon and hot. Even the hard roads of Belgium were dusty from the passing of many thousands of German troops, and close under the windows of the house that the German officers had commandeered for their mid-day meal artillery needed at the front kept thundering past. As we sat at our compressed soup and sausage washed down with claret, we could hear cannonading on three sides of us. For this was the advance of the middle column of the German invading army that crossed the Sambre east of Maubeuge, when the right wing was still fighting the English at Mons in the northwest, and the left wing was besieging Namur in the northeast.

We felt we were pretty much in the thick of things. Cavalry, infantry, bicycle corps, and artillery kept passing to the front. It was impossible for us to keep track of what they were or to what command they belonged. They were also from many parts of Germany. Some had come in from the north by way of Diest. Other had forced their way through Liège. There were even troops from southern Germany which had cut across Luxemburg. We were,

in fact, commenting on the difficulty of directing the various organizations in so large an army, when a gray covered wagon, with the German eagle stenciled on the side, drew up before the door and dumped out several sacks of mail.

The driver, leisurely fastening up the reins, climbed down from his seat with a wooden letter-box labeled "Feld Post," and hung it beside the door. Then he dumped the contents of the mail sacks in the open doorway, threw the sacks into the wagon, and took the crossroad to some other point where there was a column advancing to the front.

The mail that was dropped was for the command we were with. The soldiers on the march had received their mail an hour or so earlier when they took their rest before going into action. But, as the troops passed, two or three men from each company would break out of line and drop a handful of unstamped postal cards into the box.

Many of those postal cards were the last the senders would ever write. But even up to two or three hours of the time they were killed they heard from home and sent back cheering messages.

This was just one indication of the marvelous system of the German army which I saw in action for ten days while the army crossed Belgium. Somewhere behind it were minds which figured out moves as on a chessboard. Every command was at certain points at definite times. Even the hour and the spot for taking the noonday rest were known in advance. The system must also have had a workable elasticity, as it kept up with the same precision day after day despite events which could not possibly have been foreseen. For instance, the crossing of the Sambre that day was a chance occurrence, as I learned later in Paris, where I am now writing. There had been a severe clash the night before, and both sides fell back at nightfall to reform. It was not until early in the morning that the German army, by advice from its aeroplanes, saw its advantage and took it before the French moved up. So the movement that morning could not have been known in advance. Yet there was the mail and the mail-box at a point where there had been actual combat the night before.

The most remarkable evidence of the system in the German army that I saw, however, was the advance of the right wing. From the twenty-fourth of August and possibly earlier to the sixth of September it made an average forward movement of about twenty-five miles a day, probably the fastest forward movement ever made by so large an army fighting its way. I can only estimate how many men were in that movement; but there must have been more than two hundred thousand. It crossed almost the whole of Belgium and advanced 140 marching miles into France at that unprecedented rate. All this time it was also forcing English, and later French, troops ahead of it. There were days when only a few miles were made and others when the entire column went forward forty miles. In the flanking movement to the west of Mons, when the English troops were forced out of their position at the French frontier of Belgium, the flanking column averaged forty miles a day for three days.

THE INVALUABLE MOTOR TRUCKS

For an army to make such an advance without getting out of communication with its supplies has always been considered impossible, but the motor-truck was responsible. I saw the first day of that movement and saw how it was done. Light supply trains guarded by cavalry moved on parallel roads, and, the one night I saw the system in this particular case in action, these light trains were re-supplied by big motor vans coming forward at fifteen or twenty miles an hour from the base of supplies. The ordinary supply trains were able to travel light and make good time over the splendid Belgium roads, because they were being refilled nightly from the rear.

I saw motor vans at the extreme southern end of Belgium in the early morning which had left Aix-la-Chapelle the night before. They had come across Belgium in the night. Among them there were brewery vans, florist vans, and regular army vans. These, however, were not bringing ordinary supplies forward. By the time the army began invading France rail communication had been opened from Germany as far as Gembloux. It must be remembered that at this time Namur was still being besieged only a few miles to the south. In fact fresh supplies were being brought in by rail to points due west within a dozen miles of France when there were still many thousand French troops in Belgium to the southeast. The rapid forward movement of the two westward columns of the German army would not otherwise have been possible.

As an army fights on its stomach, this question of supplies is all important. The best opportunity I had to observe it was at Louvain, where rail communication was still unfeasible, as the retreating Belgian army was only a few miles away, putting up a continuous fight. Here everything had to be brought in overland, but there was no delay in receiving supplies. Every division, almost every regiment, was followed closely by its light supply trains, carrying enough for a few days only.

The first of the German troops to pass through Louvain on the road to Brussels had not yet gone into action three miles to the westward when the supply trains came through from Tirlemont, where they had been the night before. It was then only shortly after noon, but the four-horse supply trains came on the trot, and went almost up to the firing line. They were immediately behind the medical corps operating under the Red Cross.

The medical corps itself moved forward with

the same, almost inhuman, precision. I was at a number of points in Belgium where the German army had suffered losses, but there was nothing to indicate it but graves. The battlefields, after the German army had moved forward, were left almost without a mark of combat. You could see, of course, where soil had been torn up and trees had been riddled. Where there were houses they also had gaps in their walls and in many cases had caught fire, but there were no human evidences. Those who were dead were buried, and the wounded had been gathered up and sent to the rear in ambulances. Coming up to a battlefield near Bray, I encountered a number of ambulances headed toward the rear, and I expected to find a field of carnage ahead of me. But when I got there, there was not a wounded man or a body anywhere. There were not even any dead horses.

But no more men were used to take care of the wounded than necessary. I saw a wagon full of wounded soldiers come through Binche which had just left a field hospital close to the firing-line along the Sambre, ten miles away. It was being driven by a man whose left arm was bandaged to the shoulder, and the two soldiers who sat on guard at the rear of the wagon had each been wounded in the leg. One had also had a big piece of scalp torn off. They were well within their own lines, of course, but there was not a sound man among them. They had been sent back to find quarters in Binche, or somewhere to the north.

This was the nearest to a loose end I saw anywhere in the German army. I passed back of the lines, parallel with the firing-line and at no point more than fifteen miles from it, for a distance of twenty miles, and I did not encounter a straggler or a broken-down wagon. About the only unforeseen event which seemed to occur back of the lines was the losing of horseshoes, but that was always attended to at once by horseshoers accompanying wagon trains. I crossed the trail of fully 350,000 men, but there was nothing to indicate that any of them had fallen out of line.

THE DESERTED REAR

They also stuck close to their commands, and, except for the main lines of advance, there was no sign of them. I found this very convenient when I decided to return to Brussels and make my way to London and Paris. As Belgium, except for a small corner near Antwerp, was all under German rule, I might have found my progress slow if I had been stopped every few miles and been led before the district commander to give an account of myself, but, by following a canal which ran north about half way between the westward and the central lines of advance, I was able to go from a point near the French frontier to Waterloo, about forty miles, without encountering a German soldier. I was also told no German soldiers had been seen. But even on the main highways over which the large motor vans were constantly passing, I would only have met a small guard at long intervals. It might appear from this that the line of communication could easily have been cut. But the aeroplanes made this impossible. They kept patrolling the air on regular beats, and, apparently, reported as regularly as roundsmen. It left open one possible danger, sniping, but the thoroughness with which that was dealt with had given all southern Belgium a fright. Not to mention the burned cities in the north, two towns in the south of Belgium, Péronnes and Piètons, had been burnt, and a number of their citizens had been stood against a wall and shot for sniping.

The system of the German army proved to be inflexible on this point. It was terrible in its exactions. It left no room for mercy. The laws of reprisal as read by the German army were fixed. Once the command for citizens to deliver firearms was issued, every citizen found with a weapon was shot. You cannot imagine the terrifying effect that immutable order had upon the countryside. It gave every German soldier complete power over the country he traversed. He need only tell his commander he had found a citizen with a revolver and that citizen was as good as dead. It would be surprising if such a power were not on occasion abused, particularly as nearly a million soldiers passed through Luxemburg and Belgium. Whether it was abused only the military records of that advance will show, but the Belgians lived in terror of it being abused, and, except for those who did the actual sniping, they gave the German soldiers as little occasion as possible to take offense.

The passing of the German army had an appalling effect because of its single-mindedness. It was like something cosmic. It seemed as if nothing could stop it, because the individual unit advanced on a fixed course and was given no discretion. It was a steam-roller passing over the land. What advantage or disadvantage there may be in this fixedness of movement is being tried out on the battlefield. But, however that may be, each unit was taken care of to the smallest detail.

One of the first things I noticed about the German soldiers on the march was the way their coats flared out at the bottom. They seemed to be weighted. But when I had an opportunity to examine one of these coats I found that it was an emergency kit. It contained everything from thread and needles to chocolate. It had compressed food, tobacco; bandages, matches, and adhesive plaster. All this, mind you, was in addition to the regular pack.

When I was afoot trying to catch up with a column of infantry, I found that, though I grew foot-sore, the thousands of men ahead of me kept up their steady march, and very few went lame. Those who did were carried along on the wagon trains until they were able to walk

again. But I did not see many riding. Their boots were rough cow-hide, but they fitted. Their food was simple, but it sufficed. I have seen newspaper stories about the poor rations served the German troops, but I know better. They made even their forced marches on hot soup and salt meat. There was plenty of it and it was savory.

What struck me as the most important adjuncts to an invading army making forced marches day after day were the camp stoves on wheels. I shall never be able to think of them without the setting in which their utility was first impressed on me. An infantry command was marching down a long, straight Belgian highway, shaded by double rows of trees on both sides. It was an interminable road, it seemed, and, although it was already past noon, there was no sign of a let-up. I did not know it then; but that command had another twenty miles to go and a sharp skirmish ahead of it before night.

At the word it broke ranks in the edge of a village where water, already tested for typhoid, could be had, and down the middle of the road in less than five minutes came several of these traveling stoves, each drawn by two horses at a sharp walk. The soldiers crowded around immediately with their tin cups and each was given a brimming cupful of good, nourishing soup. It was cooked while the stove was being drawn down the road. Half an hour later, fed and refreshed, the command was on the march again.

The equipment of the German officers on the march is even more complete than that of the privates. Wherever I encountered one he was always outfitted with an excellent map of the country over which he was passing. It was encased in leather and hung around his neck on his chest where he needed only lift it to read. Their binoculars also were the best made. A captain, with whom I talked, asked me to look through his and then through those of one of his lieutenants. The lieutenant's proved to be much better, and I said so. "His are provided," the captain explained, "but I brought my own, thinking they would be superior. Now I wish I had brought the others."

Provision for every contingency was so complete that German officers frequently commented on it themselves. They were proud of belonging to an organization that was so workmanlike in its construction. The fact that individual initiative was almost completely removed did not seem to get on their nerves. It did on mine, however. Just to watch it in its clock-like movements was aggravating. Men marched, ate, lay down, and got up to order, as if they were inanimate bodies operated by machinery.

The impression I received of the German troops was that they were more in fear of their commanders than of the enemy. This was more noticeable in the troops from Prussia and the provinces to the east. It seemed least true of the troops from Bavaria and the south of Germany. Still I saw little evidence of the reason for this fear. It seemed to me that the troops were not harshly treated, and I saw only one evidence of brutality. That was nowhere near the fighting line, where it might be expected. It was in the Grand Place of Louvain three or four days before it was burned.

A company of infantry belonging to a Posen regiment came marching down through the city. It was covered with dust and showed it had had a long, hard march. As it came into the Grand Place women with glasses of beer to sell came running out from every café. This was the usual thing, and, though the officers sometimes thought it better for the men not to drink it, usually they merely ordered the women back. But the lieutenant in command of this company waited until a dozen men had glasses in their hands and then struck each of them a sharp blow across the wrist with his riding whip. They took the punishment, of course, without a word, and handed the beer back.

There were a good many citizens of Louvain standing near, and you could see what was passing in their minds. It was the only time I saw them reveal their thoughts plainly. They were saying to themselves: Is this what German rule means? If Germany keeps us, will we have to submit to that? As a matter of fact the final clash between the German military authorities and Louvain came in just six days from the time the German troops entered, and then Louvain was burned.

The only time I saw the German discipline relaxed, it so happened, was at the burning of Louvain. I saw a good many men there who were more than half drunk, doubtless from wine or liquor which had been looted, and most of the soldiers were smoking cigars. These must also have been taken from the stores after the owners had been ordered to leave, as nearly every man I saw had a supply and there was no one from whom they could have been bought. On that wild night, however, it would have been impossible to maintain discipline. The soldiers were under the sway of ruthless destruction. Yet I saw an infantry company lie down in rows on the stone floor of the railroad station and go to sleep in the midst of the excitement. They were told to do it, and they did it.

At no time did I come upon stray detachments of German troops. There seemed to be no hour of the day or night when they were not immediately under the eyes of their officers, who, in turn, were under exact orders from their superiors. This made it difficult for me to credit the stories of atrocities of which the German army was supposed to be guilty. I presume a million men could hardly pass over any stretch of territory without some evidence of brutality, but, it seemed to me, the German soldiers had less than the ordinary amount of opportunity to be brutal.

The care with which German officers looked

after their men on the march took a more personal form as they prepared for battle. The seemingly unbridgable distance between officer and soldier disappeared and they went into action on a fighting equality. In the face of death they were equal. You get a different impression from the accounts of German troops being pushed forward in masses to be mowed down by a devastating fire, but when this happened, officer and soldier went in together, and I have not heard any one who fought them say they had to be driven in. Their discipline had become a part of them. They were but units in the whole, and they died as units, and as brave men.

At various times when other correspondents and I were close in behind the firing-line we speculated on what would happen in the event of a defeat, and we always agreed that we would prefer not being in the line of that retreat. The organization of the German army seemed so inflexible we expected it to break to pieces in a defeat and become a rout. But the first serious repulse that came to the men of which we made this observation was at Meaux and during the retreat to the north, and even the French official reports spoke of the way the German lines held, although they were being cut to pieces.

The details of the battle of Meaux and the retreat of the German troops for forty miles in three days' fighting have not yet been given. But here was a case where the impersonal German discipline would have been expected to break, if anywhere. These men had come at a speed never equalled in an advance of that kind and were within fifteen miles of Paris, their goal, when they encountered unexpectedly a resistance they were not prepared for. Up to that time they had had the English troops on the run for four days, and for three more days the French, who relieved the English, had also been unable to stop them. Then, at the Ourcq and the Marne, they were met with such a severe fire that they were unable to make their pontoon bridges or hold their positions on the banks of the rivers. At one point there were sixteen attempts to make a pontoon bridge before it was abandoned. They had known nothing like this, and I would have expected to see their cut-and-dried discipline go to pieces before such an onslaught, but the good order in which they retreated has been commented on officially even in France.

"ATROCITIES" IN WAR

THE HYPOCRISY OF THE COMPLAINTS OF THE FIGHTING NATIONS THAT THEIR ENEMIES ARE USING BARBAROUS METHODS—THE COMPARATIVELY MERCIFUL DUM-DUM BULLET—PRECEDENTS FOR BURNING CITIES AND RAVAGING THE COUNTRYSIDE—THE UNPROGRESSIVE ART OF MILITARY LYING

BY

CHARLES FREDERICK CARTER

May I give a word of caution to my countrymen against the unsportsmanlike practice of abusing one's enemies? Let us avoid what Kipling during the Boer War described as "killing Kruger with your mouth." Let us rather devote all our energies to defeating our foemen by the superior fighting of adequate numbers of British soldiers in the open field.

When we read the charges against the German troops let us remember that gross charges absolutely untrue were brought against our own brave soldiers fighting in South Africa, but whether the charges are true or not let us keep our own hands clean and let us fight against the Germans in such a way as to earn their liking as well as their respect.—LORD ROBERTS, in *The Hibbert Journal.*

LYING has ever been as much a part of warfare as blows and wounds. War being a reversion to savagery, it is to be expected that veracity should be submerged along with other virtues. Under these circumstances allegations from combatants regarding the conduct of their foes should be taken, not with a grain of salt, but with many grains. Belief should be all the more grudging because under conditions imposed by war it is impossible to obtain evidence that would be accepted in any court either confirming or refuting tales of atrocities.

Though other branches of military art and science have made noteworthy progress in the last half century, military prevarication has hardly advanced at all. The same old tales that served in wars of a former generation are made to do duty to-day.

In formally inviting the attention of the United States Government to the charge that Germany's foes were using dum-dum bullets, the Kaiser but followed the precedent set by Bismarck, who, in a dispatch from Versailles, dated January 9, 1871, recited the familiar formula about expanding bullets being found in the pockets of a Frenchman, though neither the name "dum-dum" nor the particular form of expanding bullet to which it is applied had

then been invented. Bismarck said he would forward the horrid things to the foreign office to be submitted to the representatives of the Powers.

In the South African War the Boers and their sympathizers accused the British, and the British accused the Boers, of using dum-dum bullets. In the Russian-Japanese War each side formally charged the other with using dum-dum bullets. In the Balkan War it was the same. It is scarcely an exaggeration to say that the filing of the dum-dum charge has come to be regarded as a solemn rite without which no war could be regarded as properly launched.

It is true that all nations, including the United States, have used explosive or dum-dum bullets, or both, in war. The Russians used explosive bullets, invented by an Englishman ninety-two years ago, in the Crimean War. They were adopted by England in 1862. Prussia, Bavaria, Austria, Switzerland, and other countries all used explosive bullets. Early in our Civil War 33,350 explosive bullets were issued to Federal troops. The Confederates captured 10,000 of them and fired them at their former owners. The German observer with the Confederates saw explosive bullets used in action near Fredericksburg and pronounced them ineffective.

This may, or may not, have been the controlling reason why no nation has used explosive bullets since 1868. Nevertheless, it was Russia, popularly supposed to be the most benighted of nations, that first proposed to abolish this sort of ammunition, not because it was ineffective, but on the ground that it was needlessly cruel.

Having abandoned explosive bullets, and finding the ordinary bullet then used in the Lee-Enfield rifle incapable of stopping the rushes of Afridis, Fuzzy-Wuzzies, Dervishes, and other savages, England resorted to "dum-dum," or expanding bullets, so-called from Dum-Dum, a town four and one half miles northeast of Calcutta, containing an arsenal where these missiles were first made. This produced the same sort of effect as the explosive bullet, but by a different method. It consisted of a steel or nickel jacket with a lead core. At the point was a hole in the jacket about the size of a pin, or a slight notch, so that, when the bullet struck, the jacket would open like the leaves of a flower and the soft lead core would mushroom, tearing a hideous wound in the victim.

At the first Hague conference in 1899 all nations but the two supposed to be farthest advanced in humanity, England and the United States, agreed not to use dum-dum bullets any more. At the second conference in 1907 these two nations also signed the agreement.

But since the first Hague Conference no nation has used dum-dum bullets for a compelling reason that has nothing to do with The Hague nor with considerations of humanity. Experience has taught that when a modern high powered rifle, such as is used in all armies to-day, is hot and dirty, conditions common in battle, the dum-dum bullet is liable to "strip"; that is, the leaden core is apt to squirt out, leaving the jacket in the barrel, so that when the next shot is fired the gun blows back, or bursts. The owner may be killed, and his weapon is sure to be rendered useless.

Although England was accused of using dum-dum bullets in the Boer War, the fact is that at the opening of hostilities the War Department hastily recalled all ammunition of that character for those reasons. It was a very serious step to take, for nearly half the stock of ammunition on hand was of the dum-dum variety. But the Government dared not risk such uncertain ammunition in such an important enterprise.

The shallow hypocrisy of the conventional cant about the use of dum-dum bullets may be appreciated when it is remembered that though the bullet used in modern high powered rifles often makes a clean perforated wound about the size of a lead pencil which heals quickly, it all too frequently "tumbles," or assumes "spinning top," "hour-glass," or "pirouetting" motions with the result that the wound it inflicts is quite as ghastly as any that a dum-dum could produce. Aside from all this a bullet propelled by the modern rifle strikes with such terrific force that even when it enters the body without erratic motions it produces a series of molecular shocks which radiate cone-wise from the point of impact to the molecules on the opposite side. Though it may enter by a small hole the bullet may, and often does, completely disintegrate organs through which it passes, and the point of exit may be a ragged wound as large as a saucer.

SHRAPNEL WORSE THAN DUM-DUMS

To throw the cant about the "inhumanity" of dum-dum bullets into still stronger relief, bear in mind that the same enlightened international code which strains at the dum-dum gnat swallows the proverbial camel by sanctioning the use of shell and shrapnel, which never produce a "humane" wound, but only the most ghastly mutilations. The following description by Ellis Ashmead Bartlett of the effects of shell fire at the battle of 203 Metre Hill, during the siege of Port Arthur in 1904, makes the point sufficiently clear.

"There were practically no bodies intact; the hillside was carpeted with odd limbs, skulls, pieces of flesh, shapeless trunks of what had once been human beings, intermingled with pieces of shells, broken rifles, twisted bayonets, grenades, and masses of rock loosened from the surface by the explosions."

No formula of words seems to cover the dum-dum subject more satisfactorily than the following from a letter from General Sherman to the Confederate General Hood:

"If we must be enemies let us be men and

fight it out, as we propose to do, and not deal in such hypocritical appeals to God and humanity."

An important point to be borne in mind is that what is really part and parcel of warfare is denounced as abuse and atrocity. Sherman never coined the aphorism so frequently attributed to him, though he did his honest best to make war fit his alleged definition. What he did say was, "War is cruelty; and you cannot refine it." Napier said, "War is hellish work." Both understated the fact.

MASSACRE OF NON-COMBATANTS "LEGITIMATE"

For example, the Germans were within their rights in destroying Louvain and massacreing its male inhabitants if the latter fired upon German soldiers, as the latter allege. The Hague Regulations, so often paraded as the loftiest expression of the world's awakened conscience, sanctions the course of the Germans, always assuming that their contention is correct. And as all the competent witnesses for the Belgians are dead, the Germans clearly have the best of the argument.

In the tragedy of Louvain the history of Bazeilles, which sent a thrill of horror through the civilized world forty-four years ago, repeated itself. Bazeilles was a French village south of Sedan, on the road to Montmédy. During the fighting in the vicinity the inhabitants of the village took an active part, according to German official history, sparing neither wounded nor stretcher bearers. The official history piles on the horrors, alleging that the villagers poured hot oil over the wounded before carrying them into burning houses to be roasted alive. It does seem supererogatory to go to all the trouble of heating oil to pour on a victim for whom a fiery furnace is already waiting, and in the turmoil and excitement of battle, too; but that is what the Germans say. The French say their foes bayonetted old men and women and threw infants into burning buildings.

Again there were no competent witnesses for the defense when the incident was closed; but there seems to be no doubt that the villagers resisted the invaders and that the latter killed all they found with arms in their hands with some others for good measure, and burned the place.

When the Germans captured Gisors in October, 1870, they refused to treat the franctireurs, the French term for guerillas, as prisoners of war, but shot five of them on the spot without trial. In the course of the war great numbers of guerillas were shot after their capture by the Germans. One batch of twenty-five prisoners was shot at one time. In fact, the Germans did exactly what the Indians used to do in frontier days; that is, whenever they caught citizens with arms in their hands in the act of defending their homes they killed them on the spot.

Under the law of nations, as defined by The Hague Conference and subscribed to by all civilized peoples, a citizen whose country has been invaded has no right to protect his property, his family, nor his life unless he belongs to a military organization duly constituted by his government and wears a uniform. In the latter case the invaders may lawfully kill him in battle if they can shoot straight enough; but if he fights without uniform they may legally kill him after he has been made prisoner and is helpless, and without trial, too; that is, the killing is lawful and proper if the executioners are civilized Christians; but if they are savages, it is wrong. Average folk, equipped with nothing but ordinary standards of morality for their guidance, may not be able to grasp the distinction, but there is a great difference; all the authorities on international law say so. To quote an English authority on the Bazeilles incident:

"Extreme as the punishment was, the inhabitants had undoubtedly broken the laws of war in joining in the street fighting, and the Bavarians had a clear right to deal summarily with those taken red-handed in action."

It must not be supposed that Bazeilles and Louvain are isolated instances. History affords ample evidence of the invader's right to punish popular resistance, and of the liberal exercise of that right. Napoleon gave short shrift to citizens who ventured to dispute his progress by force of arms. In the Russian-Turkish War in 1877, when the Russians captured Eski-Zagra shots were fired on them from certain houses. Thereupon General Gourko ordered that the inhabitants of all such houses should be hanged at their doors.

THE DESTRUCTION OF PROPERTY COMMON

In the South African War the British burned all houses from which shots were fired at the troops. The snipers, when caught, were imprisoned or deported, but in no instance was the death penalty inflicted. Whenever a railroad was damaged Lord Roberts destroyed every house within ten miles of the scene.

This was in accordance with precedents created in our own Civil War. General George H. Thomas, one of the kindest and gentlest of commanders, was for a time dependent on a single line of supplies, a railroad over the Cumberland Mountains. Guerillas, claiming to be innocent non-combatants, kept burning bridges and choking tunnels with logs and rocks until Thomas gave notice that the next time a tunnel was obstructed he would burn every house within five miles. There was no more trouble.

It is a great help in appraising the acts of war at their true value to remember that everything depends on whose ox is gored. What to the victims, and perhaps, also, to the neutral observer, may seem barbarous vandalism is to the perpetrators a proper and necessary act sanctioned by international law.

The instructions prepared for the Federal forces in the Civil War declared that "Military

necessity . . . allows of all destruction of property," provided it be "indispensable for securing the ends of war." Article 23 (g) of The Hague Regulations reaches the same conclusion by different verbiage: "The destruction and seizure of any property is illegal, unless imperatively demanded by the necessities of war."

As the commander in the field is the sole judge of what is demanded by any given set of circumstances, it may readily be imagined that Military Necessity covers more sins than Charity ever does.

An incident in the Franco-Prussian War, from which conflict much of modern laws of war date, shows to what lengths military necessity can be justified. The Germans, fearing that French gunboats might come up the Seine, seized some British colliers and sank them in the river to form an obstruction, with the British flag still flying, and scarcely allowing the crews time to escape. Bismarck pleaded that the act was necessary and England did not demur, but accepted the indemnity which Germany proffered.

CASH LEVIES IN THE CIVIL WAR

Most, if not all, the accusations of atrocities heard in the progress of the European conflict were brought against the United States in the Civil War; and many of these charges had about the same proportionate basis of fact. In levying contributions on captured Belgian towns the Germans did no more than the Confederates attempted to do by General Early's order at Chambersburg, Pa. When a contribution of $200,000 in gold was not forthcoming on demand the Confederates burned the town without waiting for the removal of women and children or the sick.

By this process of levying contributions on captured towns, a custom much in favor in buccaneering days, the Germans did very well in the Franco-Prussian War. In addition to one billion dollars in gold and two provinces exacted from the National Government of France, they also collected $123,000,000 from captured towns and provinces in the form of contributions, taxes, and requisitions. They also established a precedent which has not been effectively questioned, which has proved profitable in the present instance.

Federal forces in the Civil War made no attempt to levy contributions on Southern towns, for that contest was not waged for profit; but they were ruthless in the destruction of property. The reason for this policy was clearly stated by Sheridan:

"Death is popularly considered to be the maximum of punishment in war," said he, "but it is not; reduction to poverty brings prayers for peace more surely and more quickly than does the destruction of human life, as the selfishness of man has demonstrated in more than one great conflict."

Grant, Sherman, Sheridan, and Halleck heartily agreed on this point. In sending Sheridan on a raid in the Shenandoah Valley, Grant ordered him to "Do all the damage to railroads and crops that you can. Carry off stock of all descriptions and Negroes, so as to prevent further planting. If the war is to last another year we want the Shenandoah Valley to remain a barren waste." An irreverent private paraphrased these instructions by saying, "The rebellion must be put down if it takes the Confederacy's last chicken."

Sheridan carried out his instructions so well that it was said that "a crow flying across the Shenandoah Valley would have to carry its own rations."

Before starting on his famous march to the sea Sherman ordered all the inhabitants of Atlanta to leave, offering them transportation to the Confederate lines or to any point in the North they wished to go. This brought a letter from General Hood in which he said Sherman's order "Transcends in studied and ingenious cruelty all acts ever before brought to my attention in the dark history of war." Sherman retorted by telling the Confederate leader to "talk thus to the marines but not to me;" and reminding him that he had defended Atlanta on lines so close that even Federal musket shots that overshot the mark went into houses occupied by women and children, and other things to show that "studied and ingenious cruelty" was not all on his side. Hood gave a carefully edited version of the correspondence to the newspapers to "fire the Southern heart," thus setting an example that has been faithfully followed by governmental press bureaus in the present conflict.

Sherman's final act was to raze all buildings in Atlanta that had been used by rebel forces and set fire to the ruins. All the business portion of the city was destroyed, though dwellings were spared. In his march through Georgia and the Carolinas he devastated the country, destroying mills, railroads, granaries, crops, seizing horses, cattle, sheep, hogs, turkeys, wagons, and everything else that could be eaten or otherwise used by the enemy. As a direct result of this raid Lee's men lived for months on less than half rations. This wholesale destruction did a great deal to hasten the end of the war.

BURNING OF TOWNS IN THE CIVIL WAR

Columbia, S. C., was burned immediately after it fell into Sherman's hands, but the fire was set by Wade Hampton when he evacuated the place. The Federals tried to put out the fire but could not on account of a high wind. Richmond was also burned by fire started in some tobacco warehouses by the Confederates when they left. Jackson, Miss., though, was deliberately burned by Sherman by Grant's direct orders as a "railroad centre and manufacturing city of military supplies." When the Memphis *Bulletin* complained of the waste committed by the Federals Sherman replied:

"Yes, it is waste; but it is also war, for war is waste—waste of lives and waste of property. A command must commit waste in many ways—it must trample crops, take materials to construct fortifications, cut down fences, clear the ground of anything that would obstruct its fire or give cover to the enemy. Such damage is chargeable, not to the troops who cause it, but to the very nature of war, for, generally, war is destruction and nothing else."

The Federal forces were outdone in the work of destruction by the British in South Africa. In the six months ending with January, 1901, 634 Boer farm houses were burned. This aroused public indignation everywhere and brought recruits to the Boer forces which were thus strengthened so that they regained territory on every hand. Instead of changing their policy Kitchener instructed columns to clear the country of supplies of horses, cattle, crops, and vehicles, burn all that the army could not use and destroy mills and bakeries. The eastern Transvaal, once a land of plenty, was turned into a blackened desert. Not a beast, not a field of standing corn, not a native was left.

Some women and children were left on the veldt without food or shelter to starve unless rescued by the Boers; but more than one hundred thousand of them were gathered in concentration camps, the conduct of which was severely criticised.

OUR CONCENTRATION CAMPS

It will be remembered that "Butcher" Weyler's concentration methods in Cuba did much to rouse the storm of popular indignation in the United States which culminated in the war with Spain. It does seem a little odd, therefore, to find Americans in the Philippine insurrection doing the very thing for which they denounced Weyler. True, the Americans did not exactly establish concentration camps; instead they provided "zones of refuge," which is a much more euphonious term. Into these zones of refuge the inhabitants were "invited" and everything outside of them was destroyed. Results were prompt and decisive. In a few months order was restored and the inhabitants were able to return to their lands.

One of the popular myths about atrocities of war relates to the wholesale poisoning of the enemy. This tale has already seen service in the present conflict, Russians and Germans appearing alternately as poisoners and intended victims. The use of poisons is expressly prohibited by the Hague Regulations; but a much more effective deterrent is the difficulty of wholesale poisoning by direct means.

At the beginning of the Boer War the English papers freely accused the Boers of robbing the gold milling plants in the Rand of cyanide with which to poison wells and streams used by British troops. Of course the Boers did nothing of the sort; but they did cut off Bloemfontein's water supply, a step that is lawful and proper under the Hague convention, thus forcing the British garrison to use water from tainted wells, which caused an epidemic of typhoid fever. Again the common mind may fail to grasp the delicate distinction between administering to an enemy a fatal and illegitimate dose of cyanide of potassium and giving him an equally lethal, but perfectly proper, dose of typhoid germs.

In retreating before Sherman's forces after the fall of Vicksburg, the Confederates under Johnston tried to poison their foes without resorting to illegal methods by driving cattle, horses, and sheep into the ponds from which the Federals would have to draw their water supply and shooting them there. The plan failed because the Federals drew the carcasses out and used the water—and survived.

DEATH TO ESCAPING PRISONERS

The Hague Regulations insist upon the humane treatment of prisoners and have laid down the dictum that even cases of attempted escape should not be punished by death, but by some milder form of discipline. The German General Staff, however, entertains progressive views on this point. Soon after the first Hague convention a pamphlet issued by the General Staff argued that it was legitimate to shoot prisoners who attempted to escape, and also to shoot them on two grounds of policy; first, as an act of reprisal if the enemy had done the same thing or had been guilty of some other act of inhumanity—the provocation to be decided by the Germans, of course—and, second, when it is impossible to keep the prisoners without compromising the security or efficiency of their captors. This is as liberal an interpretation of the law as a Sioux chieftain could ask. If stories about the Germans compelling captive Belgians to work on fortifications for them are libels the Germans have no right to complain, in view of that pamphlet and of the further fact that the General Staff also maintains, in direct contradiction to the Hague Regulations, that they have a right to force non-combatants to work for them. In other words, they claim the ancient privilege of enslaving captives.

But again Americans must be careful about throwing stones. When the Federals captured Yorktown in 1862 they compelled their prisoners to dig up the torpedoes the Confederates had planted in the roads to blow up Yankees. Sheridan did the same thing after the battle of Yellow Tavern. The prisoners were not to blame for the presence of the torpedoes, and to compel them to dig up the explosives was cruel. However, no harm came to them.

Still, the Federals were not so bad. During the stress of that great conflict the United States Government drew up and put into effect the first codification of the laws of war the world had ever known. This suggested to the Czar of Russia the desirability of an inter-

national war code. Accordingly in 1898 he convoked an international military conference, which was the first step in the chain of events that led to the Hague convention at which the nations of the world adopted in substance the laws of war promulgated by the United States Government forty years before as the rules of conduct in warfare to be observed by all peoples making pretensions to civilization.

War can never be less than atrocious; but what little has been done toward ameliorating its horrors has been done under the leadership of the most enlightened republic and the most backward autocracy.

KIAO-CHAU

THE GERMAN PROTECTORATE IN CHINA THAT WAS SEIZED IN 1897, OSTENSIBLY AS A PUNISHMENT FOR THE DEATH OF TWO MISSIONARIES—ITS CITIES, RAILROADS, INDUSTRIES, AND FORTIFICATIONS—A LITTLE GERMANY IN THE HEART OF CHINA

BY

GUSTAVUS OHLINGER

[In 1895, after the Chinese-Japanese War, Germany joined Russia and France in forcing Japan, by diplomatic pressure, to relinquish Port Arthur, which Russia subsequently occupied, although it was nominally Chinese territory. In 1897 the German fleet seized Kiao-chau Bay, nominally to secure reparation for the murder of two German missionaries in the province of Shantung. In the negotiation which followed, Germany acquired a 99-year lease of the land on both sides of the entrance of the Bay and with the lease valuable mining and railway concessions in the province of Shantung. The German Government has probably spent in all about $100,000,000 for building the town of Tsingtau on Kiao-chau Bay, for dredging and improving the harbor and fortifying the colony. It is the strongest German possession in the Far East, the centre of German influence in China, and the naval base from which the German Asiatic fleet operates — the real centre of Germany's Eastern colonies, which included, besides Kiao-chau, the Bismarck Archipelago, Kaiser Wilhelm Land, the Marshall, Caroline, Pellew, and Ladrone Islands, and part of Samoa.— THE EDITORS]

"GERMANY indeed," I thought to myself as I stepped on the wharf at Tsingtau, and found a sign confronting me which warned the public that certain things were *streng verboten*.

The two days' trip from Shanghai on the little Hamburg-American coasting steamer, the social chats with her genial captain, and the polished conversation of the "Herr Major," the only other passenger, had caused me to forget the curious hybrid of East and West which one sees in all the ports of China. As we approached the rugged coast line, and white houses and red-tiled roofs came in view, I tried to recall where I had seen such houses before. As we rounded a point and dropped anchor in the harbor, blue-coated soldiers and precise, uniformed officials came into view. But with these placards—the evidences of an omnipresent bureaucracy—my impressions were complete. This was not Tsingtau, the capital of the German Kiao-chau protectorate—it was Germany itself, as much so as if a piece of Prussia had been picked up bodily and pieced into the Chinese coast line.

Kiao-chau Bay is a broad expanse of water indenting the southern coast of Shantung province—that part of China which juts out boldly between the Gulf of Pechili on the north and the Yellow Sea on the south. The entrance to the Bay is narrow and easily defended. The bold, rocky coast line here throws out wedges of land on either side, which almost enclose the body of water within. The wedge of land to the east, though running down to a narrow point, widens out toward the mainland, the hills which form its backbone at the same time becoming more rugged and prominent until, about thirty miles away to the northeast, they reach an elevation of 3,000 feet. Just inside the point of this wedge, protected from the typhoons which sweep up the China coast, lies a natural harbor which the Germans have improved by the construction of a breakwater. On the opposite side of this point, where the southern slope of the hills overlooks the sea, are the white walls and red roofs of the German town

of Tsingtau. The Kiao-chau protectorate, or *Shutzgebiet* as the Germans call it, embraces the entire area of the Bay, these two wedges of land at its entrance, and a few small islands which command the approach—altogether an area of about five hundred square miles. Besides this, the German Government exercises a qualified sovereignty within a zone about thirty-one miles in width surrounding the Bay. Within this neutral zone, as it is designated, the Chinese authorities can take no action without the concurrence of the German Governor.

The acquisition of Kiao-chau was accomplished in the '90's—those sordid days when bullying aggression on the part of European Powers was pitted against the venality and duplicity of the old Chinese officialdom. Japan had just emerged victorious from her contest with China. England had acquired by lease the harbor of Wei-Hai-Wei; the Cassini Convention had given Russia important railroad advantages in Manchuria, and France was receiving railroad concessions in the south. Early in 1897, therefore, the German Government had decided to seize some port on the Chinese coast—the only question was, what port would best suit her purposes? Which section of the Chinese coast line should she grab? With characteristic Teutonic thoroughness a commission of experts was therefore sent to China to report upon the situation.

THE GERMAN PORT ARTHUR

TSINGTAU, AT THE MOUTH OF KIAO-CHAU BAY, AND THE HILLS WHOSE NATURAL DEFENCES HAVE BEEN GREATLY STRENGTHENED BY FORTIFICATIONS

After taking observations and canvassing the claims to seizure of most of the ports on the coast, the commission decided unanimously in favor of Kiao-chau Bay.

Everything was ready for the final act of aggression when, by a special Providence, on November 1, 1897, two German Catholic missionaries were murdered in the western part of Shantung province. These men happened to belong to a religious order which the Kaiser had expelled from Germany but a few years before. This circumstance, however, was forgotten under the pressing necessity of obtaining immediate reparation for the outrage. On November 10, 1897, the German Asiatic squadron dropped anchor in Kiao-chau Bay. On the 14th the town of Tsingtau was seized, and the German commander issued a proclamation in which he formally took possession of the territories that are now embraced within the protectorate.

With the desired prize already in its grasp, the German Government entered upon negotiations with Pekin. By a convention signed on March 6, 1898, China was compelled to give her sanction to this seizure, and further, made the following concessions: (1) Permission to the German Government to build three lines of railroad in the province of Shantung connecting the towns of Tsingtau, Chinanfu, the capital of the province, and Ichoufu, an important city in the south; (2) the exclusive right to develop mines within a zone extending about ten miles on either side of the railroad lines; (3) preference to Germans in all enterprizes undertaken for the development of the interior.

Immediately after the seizure, and without awaiting the termination of the negotiations at Pekin, the German Government proceeded with the strategic and commercial development of the territory. The old Chinese town of Tsingtau was razed, and on its site the German town was built. From the top of a commanding eminence the administration building overlooks the sea, the city, and the expanse of Kiao-chau Bay behind the city to the north. The *Gouvernements Hügel*, as it is called, forms the centre of a scheme of boulevards, chaussees, and well-ordered streets. The seashore has been faced by a massive wall, along the top of which extends the Kaiser Wilhelm Ufer, a fine driveway, where of an evening may be seen driving or promenading the officialdom of Kiao-chau, the uniformed officers of the army and navy, and the substantial business folk. On this chaussee stands the imposing Hotel Prince Heinrich, an important adjunct to the social life of the community.

TULIPS AND GERMAN ARCHITECTURE IN CHINA

The private dwellings are models of German architecture. Each house has a big dooryard, with beds of tulips and rows of four-o'clocks. Should you chance along in the early morning you will see the stolid Hausherr leaning out of an upper story window, drawing comfortably on a long pipe, and chatting with his next door neighbor. Very few Chinese are about, although there are 80,000 of them in the protectorate. They are not allowed to live in Tsingtau, but are confined to a separate quarter in order that they may not disturb the order and cleanliness of the German settlement.

The wharves which line the harbor have been furnished with tracks, electric cranes, and all the facilities for handling a large traffic. The harbor also contains a floating drydock, which has a capacity of 6,000 tons and can accommodate ships 135 feet long.

The rocky heights to the east of the city have been reserved for fortifications. No one knows just what engines of destruction lurk here. Barbed wire fences, warning placards, and vigilant sentries intercept the curious sightseer, and the unbroken contour of the hills gives no indication of the galleries and passages with which they have been honeycombed. But the last official report shows that the Government has already spent more than $5,000,000 in fortifying these heights, so one may readily infer that they constitute a veritable Gibraltar, rendering the protectorate almost impregnable in attacks from the sea.

THE OUTLET OF SHANTUNG PROVINCE

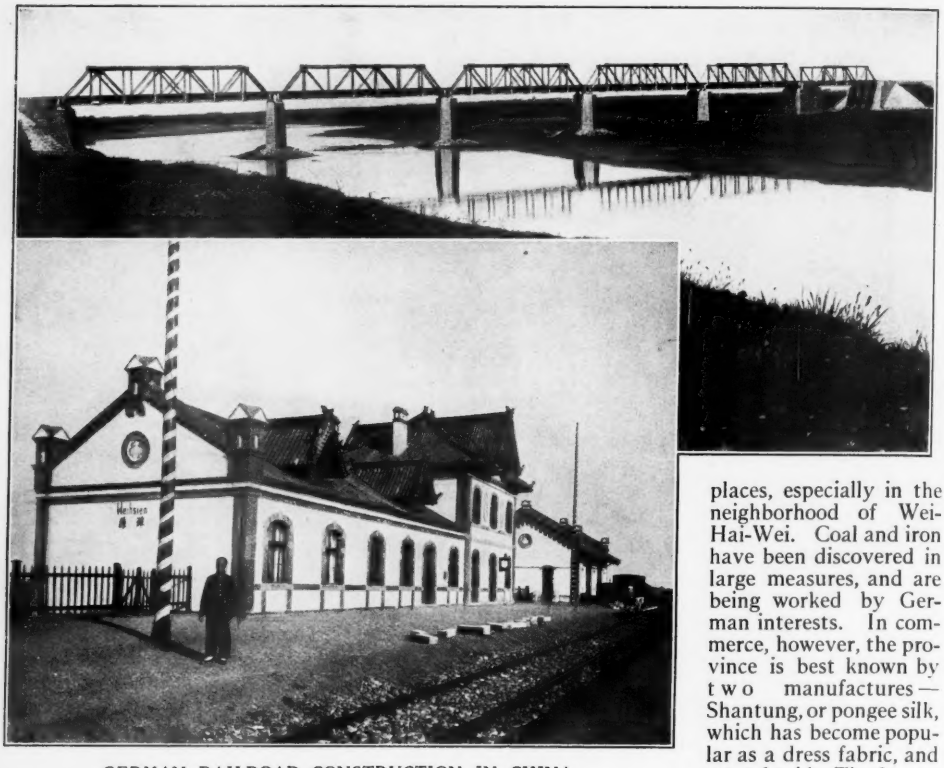
The configuration of the country makes Kiao-chau Bay the natural outlet for the Province of Shantung. Extending about twenty miles inland, the Bay washes a low plain, which reaches out across the Shantung peninsula to the northeast and separates its two mountain regions. To the east rise the bold rocky ridges which make up the Shantung promontory; to the west lies another group of mountain ranges which crowd down to the southern border of the province, but on the north are separated from the coast by a wide plain, while on the west they fall away into the broad valley of the Yellow River. It is therefore possible from Kiao-chau Bay to reach the extreme north and west of the province over comparatively level country.

These advantages of communication many centuries ago made Kiao-chau City, at the head of the Bay, the emporium of the whole province. Ships from Korea, Japan, India, and Arabia anchored close to the city walls. Since then, however, the head of the Bay has been gradually silted up, so that to-day the city stands six miles from high water, and with the ebb of the tide four or five miles more of mud flats are left baking in the sun. Trade has naturally vanished. It is this pristine commercial importance which the Germans are seeking to establish by means of the harbor at the entrance of the Bay and the lines of railroad into the interior.

The province of Shantung has an area of 55,000 square miles and a population of 25,500,000. It is rich in natural resources. Gold is being profitably worked in a number of

TSINGTAU AND THE BAY OF KIAO-CHAU

THE GERMAN POSSESSIONS IN CHINA WHICH JAPAN, AS AN ALLY OF GREAT BRITAIN, UNDERTOOK TO SEIZE



GERMAN RAILROAD CONSTRUCTION IN CHINA

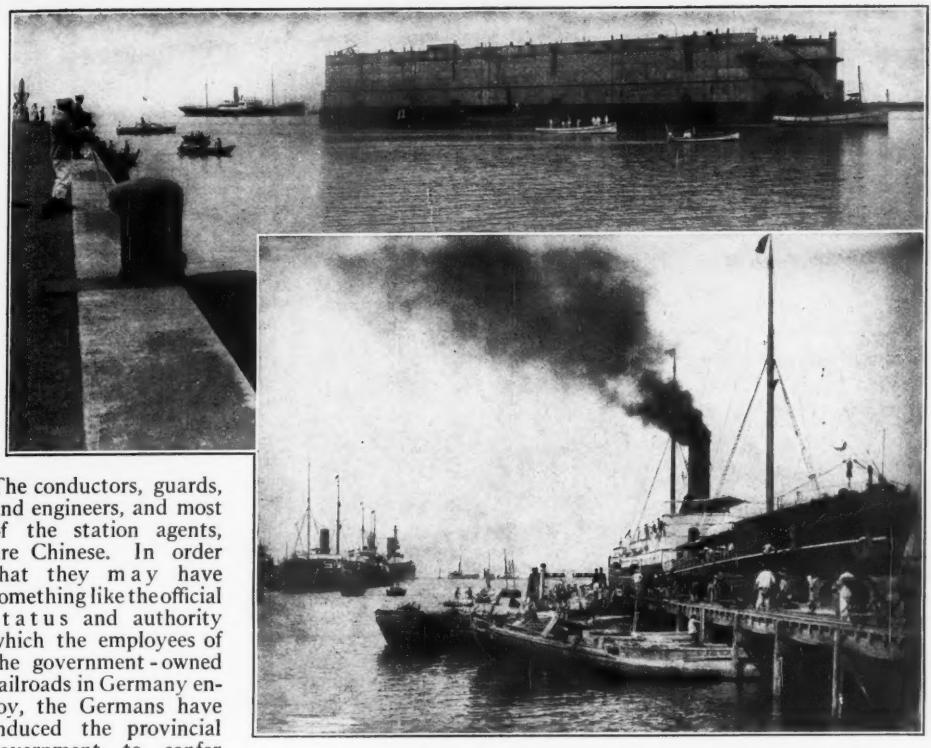
A BRIDGE AND A RAILROAD STATION ON THE SHANTUNG RAILROAD, WHICH BRINGS THE PROVINCE OF SHANTUNG WITHIN GERMAN INFLUENCE

THE POST OFFICE AT TSINGTAU

ARCHITECTURALLY AN APPROPRIATE PART OF THE "LITTLE GERMANY" IN CHINA

places, especially in the neighborhood of Wei-Hai-Wei. Coal and iron have been discovered in large measures, and are being worked by German interests. In commerce, however, the province is best known by two manufactures—Shantung, or pongee silk, which has become popular as a dress fabric, and straw braid. The former is essentially a product of home industry. It is woven by women on hand looms. The silk is obtained from the cocoon of an indigenous worm, which subsists on the leaves of the native scrub oak.

In 1899 a German company was formed known as "Shantung Eisenbahn Gesellschaft," with a capital of $11,000,000. Work was at once begun on a main line extending from Tsingtau along the east shore of the Bay and through the natural depressions of the north and northwest to the capital of the province. By the spring of 1904 this line was completed, and surveys were begun on two others—one extending from Chinanfu in a southerly direction, and the other in a southwesterly direction from Kiao-chau Bay, and both meeting at Ichoufu, a prefectural city near the southern border of the province. The Tsingtau-Chinanfu line has been extended to Poshan, and is 272 miles long. It is well constructed, with a thoroughly ballasted roadbed, good structures, and substantial station buildings.



GERMAN PREPARATIONS TO CAPTURE CHINESE TRADE

THE FLOATING DRY-DOCK AND THE WHARF AT TSINGTAU, WHERE GERMANY HAD MADE CHARACTERISTICALLY THOROUGH BEGINNINGS OF A VAST COMMERCE

The conductors, guards, and engineers, and most of the station agents, are Chinese. In order that they may have something like the official status and authority which the employees of the government-owned railroads in Germany enjoy, the Germans have induced the provincial government to confer upon conductors and station agents official buttons, ranging from the fifth to the ninth rank. Most of the employees speak good German—not a gibberish, like the "pidgin-English" of the ports—and it is somewhat startling to see a Chinese guard step to the door of a compartment and hear him announce to the passengers *bitte alle aussteigen.*

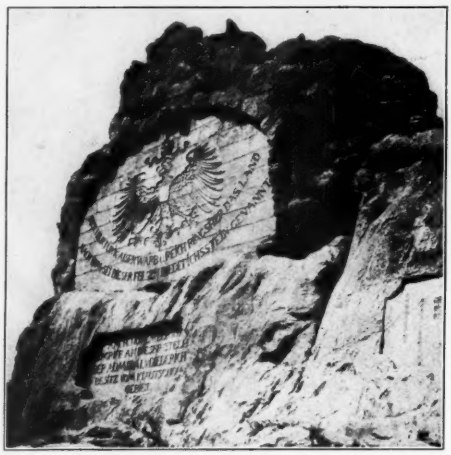
Though German jurisdiction is confined to Kiao-chau Bay, the railroad, the mining and commercial enterprises, the missions, and schools, all which are carefully fostered by the Government, have made German influence paramount throughout the province. Chinese officials are careful not to take any important action without a clear understanding with their Teutonic guests. At the same time, the Germans are obsessed by the spectre of Japanese supremacy. Japan has been an apt pupil of German military, commercial, and manufacturing methods. With the same secrecy and thoroughness which they displayed in Manchuria, the Japanese

THE GERMAN-ASIATIC BANK AT TSINGTAU

THROUGH WHICH THE GERMANS HAVE FINANCED THE DEVELOPMENT OF THEIR CHINESE TERRITORY

THE BARRACKS OF THE GERMAN GARRISON AT TSINGTAU

have been pervading Shantung, surveying, planning, scheming. Many a man who passes as Chinese is a representative of the Mikado's Empire, educated at the school in Shanghai where young Japanese are taught the dialects of China and the habits and customs of the people. When they have graduated and shifted into Chinese costumes, they readily pass as natives of whatever province they may have chosen as the field of their activity. Had she dared, Germany would



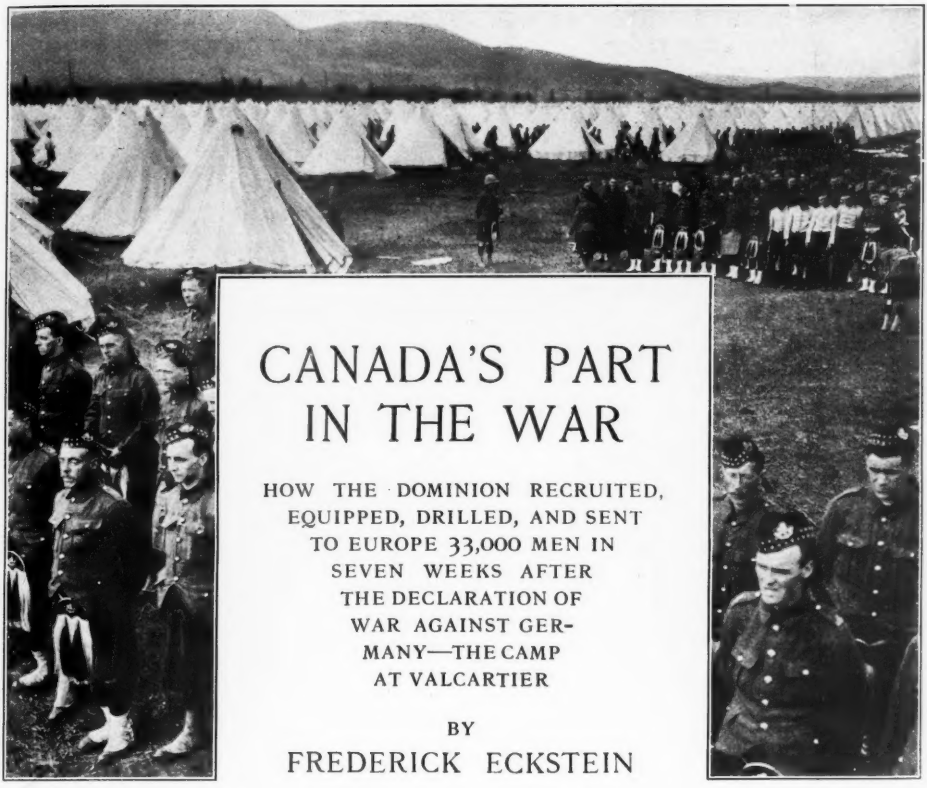
A RECORD OF THE GERMAN OCCUPATION

gladly have taken sides with Russia in the Russian-Japanese War. The downfall of Russia left her isolated as the only power in the Orient whose policy demands partition.

As the German sentry peers from the fortifications of Tsingtau, he sees in the dawn the same fleeting spectral torpedo craft which announced the siege of Port Arthur, and as the sun rises over the horizon there bursts upon his imagination the fiery sphere and radiants of the Japanese battle flag.

TSINGTAU, A MODERN GERMAN CITY ON THE COAST OF CHINA

THE CAMP OF THE CANADIAN VOLUNTEERS, AT VALCARTIER, NEAR QUEBEC



CANADA'S PART IN THE WAR

HOW THE DOMINION RECRUITED, EQUIPPED, DRILLED, AND SENT TO EUROPE 33,000 MEN IN SEVEN WEEKS AFTER THE DECLARATION OF WAR AGAINST GERMANY—THE CAMP AT VALCARTIER

BY

FREDERICK ECKSTEIN

FROM Valcartier, probably the largest training camp ever gotten together on this continent, eighteen miles north of Quebec, 30,000 troops, a complete tactical unit—infantry, calvary, guns, and auxiliary forces all in proper proportion—have gone to the war in Europe. It was a voluntary force raised, partially trained, and equipped for war in seven weeks in a country that has practically no standing army.

But this Canadian force is not purely of citizen soldiery. Many of its officers and the backbone of the rank and file are men who have served before either in the English army or in the Canadian Force that went to South Africa, and this in large measure explains the extraordinary rapidity with which these 30,000 men became a British army division ready for the field.

For example, there appeared at Valcartier a sergeant-major named Utter who had served through the Boer War. He had been wounded in the foot at Modder River. He was carried to the rear by an officer who cut off the boot and dressed the wound. When Utter reached Valcartier a Colonel of one of the Western Canadian regiments came up and spoke to him. It was the officer he had last seen at Modder River fifteen years before—a former member of the Artillery Corps, who went to South Africa as lieutenant in the Canadian Contingent.

And Colonel Sam Hughes, the Canadian Minister of Militia and Defense, who has supervised the training of the troops, is also a veteran of the Boer War. During that war, he volunteered from Canada but was not accepted. However, he was determined to go, so took passage to Cape Town and enlisted there as a private. When the war was over he had obtained a colonel's commission after being mentioned several times in the official dispatches.

This army, so quickly gathered from all parts of the vast territory of Canada, disclosed its quality at a review before the Duke of Connaught on September 13th, just forty days after Great Britain had declared that "a state of war exists." In that review, following the Minister of Militia and his staff came the cavalry—the Dragoons, the Hussars, and the Strathcona Horse, which rendered high service in South Africa. After the cavalry came the first formed battalions of infantry, now almost trained troops, preceded by the band and dressed in their brand new uniforms of dark

SERGEANT HAWKINS

THE CRACK SHOT OF THE CANADIAN VOLUNTEERS, USING THE NEW COMBINATION TRENCHING SHOVEL AND BULLET-PROOF-SHIELD. THE SHIELD SO BLENDS IN COLOR WITH ITS SURROUNDINGS THAT SERGEANT HAWKINS COULD WITH DIFFICULTY HIT ONE AT 300 YARDS

brown khaki. They were marching in half battalion fronts, 500 men to the line, and with the precision of veterans.

The strains of their band were just dying away in the distance when a shriller and more exhilarating note could be heard. It was the pipes playing "The Cock o' the North," with the Highlanders marching with swinging strides

THE 10TH GRENADIER GUARDS

OF TORONTO, MARCHING THROUGH THE "WHITE CITY" AT VALCARTIER, PROBABLY THE BIGGEST TRAINING ENCAMPMENT OF SOLDIERS EVER ERECTED IN NORTH AMERICA

LIGHT ARTILLERY TAKING A HILL

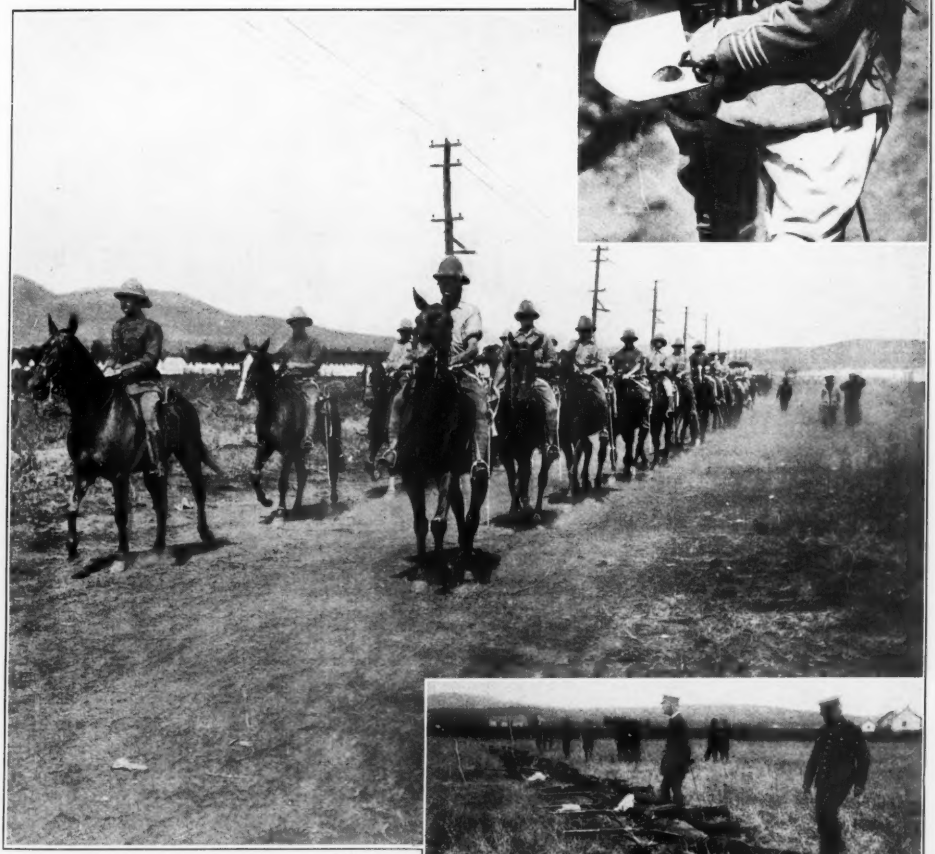
THE CANADIANS WENT TO WAR COMPLETELY EQUIPPED

behind them. They made a splendid sight even though their kilties and their sporums were hidden under khaki aprons. There were eight solid lines of them, and as they went by there was wild applause from the crowd. But it was not the cavalry nor the tall Highlanders nor yet the guns trotting by in battery columns that made the most impression on all who saw them. It was

the line after line of recruits. Their formation was not as well kept as the other perhaps; some had rifles, some had none; some of their lines were splotched with red or blue—the cast-off coats of the older uniforms; many marched in blue shirts and suspenders, but somehow they, more than all the others, expressed the spirit of this force. These men were there because they wanted to be. Each one had volunteered of his own free will—each one with a wife or family to support had obtained permission to go. There was not an ignorant face or a weak physique among them. They were the intelligent farmers' sons or the young business men from the cities, and a prouder or a sturdier body of men you rarely see.

COL. S. HUGHES

THE INVENTOR OF THE SHOVEL SHIELD, STUDYING THE EFFECT OF A HIGH-POWERED RIFLE BULLET ON IT. AT 300 YARDS A BULLET FROM A MODERN ROSS RIFLE WAS DEFLECTED AND SCARCELY MADE A PERCEPTIBLE DENT AND AT 200 YARDS FEW SHOTS PENETRATED

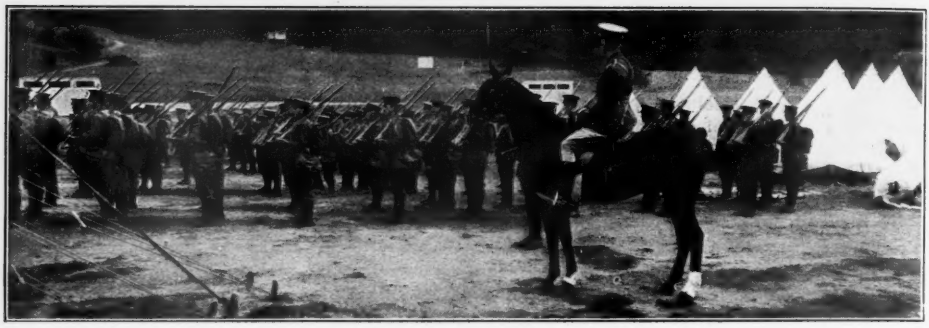


CANADIAN CAVALRY

A SQUADRON OF THE 33,000 TRAINED MEN THAT ENLISTED IN CANADA AND WENT TO THE SUPPORT OF THE ALLIES. CANADA INTENDS TO MAINTAIN 50,000 SOLDIERS IN EUROPE

TARGET PRACTICE AT VALCARTIER

THE RANGES EXTENDED ALONG A FRONT OF 3½ MILES



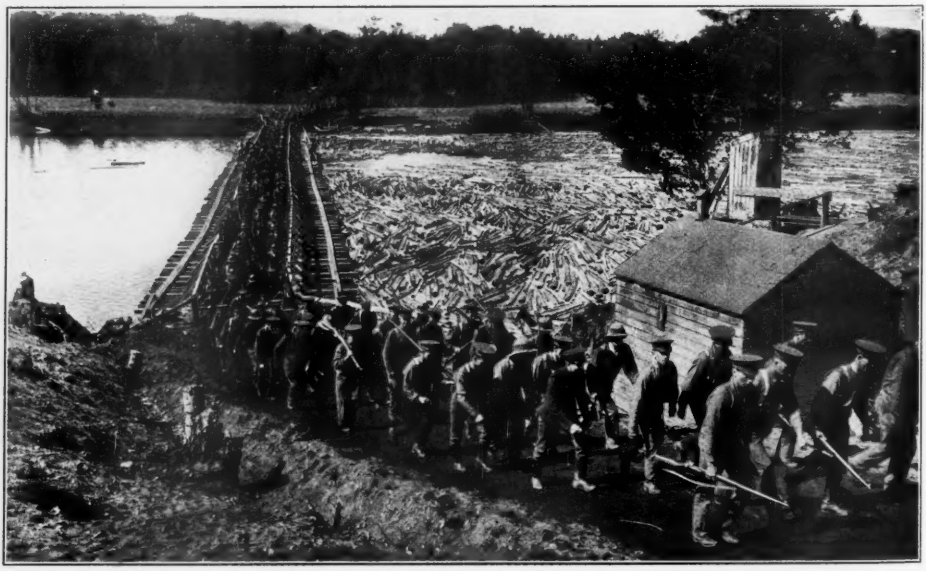
THE "PRINCESS PATRICIA'S"

A COMPANY OF THE REGIMENT THAT BEARS THE NAME OF THE DAUGHTER OF THE GOVERNOR GENERAL

The best drilled troops in the force, and doubtless the most immediately effective of the Canadian army, were the Princess Patricia's Canadian Light Infantry, Canada's crack regiment, 1,100 strong, which carries a flag made for it by Princess Patricia of Connaught. This regiment was raised and equipped by Mr. Hamilton Gault, of Montreal, at an expense of $1,500,000, and then given to the Canadian Government. Its men are the pick of Canada. No man was enrolled unless he had served in the regular army, or had had some other military training; and every man had to meet the personal approval of Colonel Farquhar, the commander. The result is that 60 per cent. of the men have seen active service, more than 80 per cent. have served in a regular army, and the remaining 20 per cent. have had volunteer army training. There are veterans among them of the Boer War, the Boxer uprising, the Mexican revolutions, and of nearly every other fight in recent times. Some are frankly soldiers of

GUARDING AGAINST TYPHOID

EVERY SOLDIER WAS IMMUNIZED BY PREVENTIVE INOCULATION



THE 90TH WINNIPEG RIFLES CROSSING A PONTOON ON A PRACTICE MARCH

SOME OF THE 33,000 MEN THAT WERE ACCEPTED FOR ENLISTMENT. PROBABLY LESS THAN ONE HALF OF THESE MEN HAD HAD PREVIOUS MILITARY TRAINING, BUT A FEW HAD SEEN ACTIVE SERVICE IN WAR

fortune, others are adventurers, but most are old soldiers who settled in Canada after the South African war. One company is made up entirely of men who have been to one of the five great English public schools, Eton, Harrow, Rugby, Winchester, or Westminster; another of veterans from the Royal Dragoon Rifles; and it is considered a great honor among the men to belong to one of these crack companies.

There are several Americans in the Princess Patricia's: one, a mess sergeant who had seen active service pretty much all over the world, including service in the expedition for the relief of Peking during the Boxer uprising. Among the other Americans in the force are six who served through the Mexican revolution with Villa. They were miles from a railroad when they heard that war had broken out but rode day and night to get to Montreal in time to enlist in the Patricia's.

The Canadian Expeditionary Force has the status of British regulars. It is organized as a division, and a division is a complete army in itself, comprising infantry, cavalry, light and heavy artillery, an ammunition column, engineers, signal corps, field ambulances and surgeons, and wagons, horses, and men for the transport of supplies. A British division usually consists of about 18,000 men, of whom 15,000 are effective fighters and 3,000 in the transport and other non-combatant services. But Canada's division is almost double this strength—a total of 33,000 men—comprising 18,000 infantrymen instead of the usual 12,000, and a correspondingly heavy force of cavalry. Now that these 33,000 men have gone to Europe, Canada is raising a second division of 20,000 men, and, after that contingent is complete, will keep its effective force in Europe at 50,000 men, replacing whatever losses it may suffer from new recruits.

The most amazing thing about Canada's military preparations, after the instant and spontaneous response of the recruits, was the despatch and efficiency in preparing the vast camp at Valcartier to house and train 30,000 men. The camp was eighteen miles north of Quebec on a plain where the Jacques Cartier River emerges from the Laurentian hills on its way to the St. Lawrence below. When war was declared, this smiling plateau was a great garden dotted with perhaps 150 houses of Valcartier village. Too weeks later houses and crop were gone; row after row of white tents, thousands in all, stood gleaming in the sun, each row three miles long; the sleepy village was replaced by a martial city, complete with streets, sewers, water mains, electric lights, telephones, and the hundreds of teams and wagons to move its wartime traffic. Thus, when the trains began to roll in, bringiug the citizens of this tent-city from all parts of Canada nearly everything was in readiness to receive them.

Within the camp when the recruits arrived, was the bustle of final city building and the multifarious activities of a gigantic vacation ground. All about the streets steam trench-diggers were hard at work digging trenches two feet deep, followed close after by the pipe layers, completing the sewer system. In front of every two or three tents garbage incinerators, burning large logs of wood, were kept going all day long. Whatever could not be burned was carted away during the night. The camp was as clean as if it had been newly swept from end to end. Here and there, above a little box set on stilts a face shining with water and, below the box, a pair of bare feet showed where the open air shower baths—one to every thirty or forty men—were at the convenience of the recruits. Besides the shower baths there was running water between every two tents and each company had its own wash troughs.

The sanitary equipment was complete. Over night a system of hospitals had been organized; and a typhoid inoculation station where every man in the camp was treated. Most of the sick in the hospital were suffering from their inoculation. Even four weeks after the camp was started, there were but fifty-two sick and hurt in the hospital.

Some of the recruits came with no equipment whatever. These were at once supplied by the ordnance department. The men gathered before a long building in which, on the sides of a long aisle, were bins in which were piled, in the order of their use, clothes, shoes, belts, guns, knapsacks, canteens, and all the other articles of equipment. Each man, as his name was called passed down this aisle and received the several parts of his outfit as he passed. Near by one thousand men received their equipment in this way every day.

Out on the edge of the plain, with the base of the hills as a background, rifle practice was carried on at the biggest rifle range in the world, its row of targets three and one half miles long. Fifteen hundred targets were used simultaneously. Allowing each man 15 shots at 300 and 200 yards, and 15 shots quick firing, 30,000 men could get target practice every day.

On this range was tested a new defensive implement of war, a small spade of nickeled steel, $\frac{3}{16}$ of an inch thick, designed to be used as a protection against rifle fire as well as an intrenching tool. It is carried on the hip and weighs but four pounds. When in action it is stuck handle downward in the ground and a man lying behind it is almost invisible to the enemy. A hole through the right side of the spade allows him to shoot while so protected. At three hundred yards, Ross rifle bullets were turned off from its surface with hardly a perceptible mark The spade is almost invisible at ordinary ranges.

On August 4th, Great Britain declared war on Germany. On September 24th, or two days more than seven weeks later, the *Megantic*, the *Lapland*, and half a dozen lesser transatlantic liners swung into the tide of the St. Lawrence at Quebec, and bore away Canada's 33,000 trained and fully equipped recruits for the great European conflict.

ENGLAND'S CONTROL OF THE SEA

THE GREATEST ILLUSTRATION HISTORY AFFORDS OF WHAT SEA POWER MEANS —LORD FISHER'S REVOLUTIONARY CHANGES IN THE NAVY—PROBABLE DISPOSITION OF THE ENGLISH AND GERMAN FLEETS—STRATEGICAL SIGNIFICANCE OF THE KIEL CANAL—THE POSSIBILITY OF A GREAT NAVAL ENGAGEMENT

MORE than eleven hundred years ago King Offa, of Mercia (one of the old English Kingdoms) formulated the military programme that his British descendants have so wisely followed ever since. At that time Charlemagne, one of the predecessors of the present German Emperor, had determined on the invasion of Britain. King Offa constructed a fleet that represented the most approved dreadnaughts and battle cruisers of his time; in consequence, the continental war lord did not make his threatened invasion. "Offa bequeathed to England," says the *Anglo-Saxon Chronicle*, recording this event, "that he who would be secure on land must be supreme on sea." England has taken this lesson closely to heart through all the succeeding centuries. When the British Government, on the breaking out of the war, ordered its commanding admiral "to capture or destroy the enemy's fleet," it was only expressing, in other words, Nelson's favorite maxim: "Our first line of defense is close to the enemy's shore." The most dramatic episodes in the war have been the struggles on land—the bloody swaying back and forth in Northern France of the death-gripped armies. The most impressive episode, however, is the spectacle upon the seas. So far England's naval victory has been an almost bloodless one; it is a victory none the less. The sinking of British and German cruisers by submarines, startling and tragic as these events may be, are, after all, only episodes in the general situation. The British fleet, remaining almost quiescent in the North Sea, still lords it over every ocean, while the German ships desperately and impotently hug the land.

The immediate commanders of the English ships—Sir John Jellicoe and Sir George Callaghan—have figured mainly in the current news; the man really responsible for the present situation has received little attention. But Sir John Fisher's work as first Sea Lord in 1904 has given England its present predominance. The strength of Britain's position at the outbreak of war was that the fleet was concentrated in the North Sea. Had England suddenly found herself in conflict with a first class naval power twelve or fifteen years ago, she would have had no such advantage. For many years the Admirality had been ignoring the great lesson learned in the Napoleonic wars—the necessity of massing her ships. The English naval forces before 1904 were scattered all over the world. There was a "Home" fleet, an Atlantic fleet, a Mediterranean fleet, a China fleet, and miscellaneous assortments of cruisers—out of date vessels—at several other points. England's greatest single fighting force was not located in the Channel, but in the Mediterranean. Here were the great effective battleships, the main line of defense, with Malta as their base. That is, England was leaving English waters virtually unprotected and concentrating several hundred miles from home. To-day this disposition strikes one as absurd; ten years ago, however, the explanation seemed plain enough. The Mediterranean fleet protected England's trade route to the East through Gibraltar and Suez. It gave immediate communication with India, and protected that part of the empire from attack by Russia. Captain Mahan, of the United States Navy, constantly pointed out that this scattering of forces menaced the British Empire. The first rule of naval strategy, he insisted, was to keep the fleet together in one place, where it could do the heaviest damage; not to scatter it where the enemy could destroy it in detail. Certain national crises emphasized the same point. Supposing, for example, that England and France had gone to war over the Fashoda matter in 1898. While diplomatic negotiations were pending, Russia informed Lord Salisbury that, in case of hostilities, the Slavic Empire would align herself with France. The Russian fleet, in those days before the Japanese war, was by no means a negligible fighting force. Nor was that of France. Russia would have immediately steamed south to the North Sea, and France north; these two fleets would have caught the weak home forces of England between them and, in all probability, would have destroyed them. Russia and France could then have turned south and engaged the Mediterranean squadron, certainly with chances of success. The world would have had a splendid illustration of the value of attacking one's enemy in detail.

To-day, efficiency and preparedness seem synonymous with the British navy, and it is, therefore, scarcely believable that, only ten years ago, these conditions prevailed. When Sir John Fisher became first Sea Lord in 1904, a revolution in naval arrangement took place. Sir John began to gather in the scattered con-

tingents of the navy and to mass them in the section where, in case of difficulties, they would be immediately needed—that is, in the North Sea. The navy's chief occupation, in his view, was to protect the British Isles, their food supply and their commerce, and this they could do most effectively if placed in immediate touch with their native land. The new foreign policy of Great Britain greatly facilitated his scheme. England's alliance with Japan made it less necessary to have a large naval force in Asia; Japan practically undertook the protection of British interests in Chinese waters—a task she at present seems to be fulfilling capably. The Entente Cordiale with France similarly decreased the danger of an attack on England in the Mediterranean. A better understanding with the United States indefinitely postponed any likelihood of difficulties in that direction and so made rather absurd a heavy squadron in the North Atlantic. The creation of the German fleet, an entirely new element in the international situation, also emphasized the necessity for a change. Admiral Fisher, therefore, made his new dispositions. Instead of the Mediterranean, the North Sea became the headquarters of the British battle force. In 1899 there were eleven battleships in the Mediterranean, the strongest in the line; in 1910, the same squadron dropped to six—and all these were of distinctly inferior power. In addition, Admiral Fisher organized a so-called "pivot fleet" in the Atlantic, so disposed that he could use it to reinforce either the Home or the Mediterranean squadrons. He withdrew an isolated squadron from the Pacific, and established an Eastern fleet of strong cruisers, for China, the Cape of Good Hope, Australasia, and the East Indian stations. Admiral Fisher did far more than this in the renovation of the British navy; he was the man who started the building of dreadnaughts, battle cruisers, and other new and successful types.

There was much disagreement as to the wisdom of these changes; both naval experts, like Lord Charles Beresford, and those interested in outlying British possessions, criticised them as unwise. Recent developments, however, have pretty clearly demonstrated that Sir John Fisher fairly well understood what he was doing. He had planned ten years ahead for precisely the contingency which has now arisen. As a result, although, according to tradition, the German officers have been drinking for years "Am Tag" ("to the day"), the "day" being the occasion when the German fleet could come to grips with her English enemy, this fateful time has not yet arrived. Both the German and the English fleets are massed; and a battle royal, unless under exceptional circumstances, is not regarded as likely.

There is much speculation, however, as to the disposition of these giant armadas. No one, except those immediately concerned, claims to know. The world has never seen the like of the censorship which regulates this war. And this censorship falls heaviest upon the naval operations, mainly because it is easier to conceal the movements of ships than those of armies. Nevertheless a careful consideration of the problems involved gives some idea at least of where the naval contingents ought to be. England's aim was clearly expressed in the order issued to her fleet: to capture or destroy the enemies' forces. Germany's problem is the defensive one of preventing such a capture or destruction, and to inflict such damage as she possibly can to the British ships by attacks with torpedo boats, submarines, and mines. With these prime ideas in mind, the naval experts can figure pretty closely as to where the forces ought to be. England seems determined, at all costs, to conceal her naval whereabouts; in announcing important events, such as the sinking of the *Amphion* and the cruisers *Aboukir*, *Cressy*, and *Hogue*, she has carefully refrained from telling where it all happened. The German ships are concealed somewhere; the possibility of going into harbors for them—repeating the famous tactics of Sir Francis Drake, who didn't hesitate, in his determination to "singe the Spaniard's beard," to enter the harbor of Cadiz itself—seems not to be the English plan. An attempt "to singe the German's beard" in this fashion, with their mined harbors and land fortifications, hardly enters the probabilities. Under present conditions, even a daredevil Elizabethan sailor, like Drake, would find it a difficult task. A Farragut might "damn the torpedoes" and enter the Elbe; still, even though he escaped destruction from the mines and land fortifications, he might have nothing to show for his pains. When he arrived in his destined harbor, the enemy, in all probability, would have disappeared.

THE KIEL CANAL DOUBLES GERMAN STRENGTH

The Kiel Canal is the answer to those who advocate a "beard-singeing" policy. A glance at the map explains the decisive part this plays in the present operations. Its western entrance lies about thirty miles within the Elbe River, a stream difficult to navigate, even when there are no mines and land fortifications. From here it extends in a northeasterly direction for eighty miles until it enters the Baltic at Kiel. Consider now, for a moment, what would happen should Admiral Jellicoe adopt the programme suggested by Winston Churchill in a recent speech and attempt to "dig the Germans out like rats." If he sought them in the river Elbe the German battleships, assuming that they were stationed there, would quietly slip into the Baltic end of the canal. The wildest advocates of an aggressive policy would not suggest a pursuit further—this form of suicide strikes no one as sane seamanship. On the other hand, imagine that the British ships enter the Baltic through the Skagerak and Cattegat, the exceedingly difficult and dangerous strait that separates Norway and Sweden from Denmark. By the time the English reached the Baltic waters

the Germans would have slipped through the canal into the river Elbe again. Such a game of hide and seek could have no result that would not be disastrous to the British navy. Indeed, the English would have only one possible move: to split their forces into two parts, one to search out the Germans at the Elbe, the other to enter the Baltic. That is precisely what the Germans would like to have them do. The Germans could then engage England on more than even terms; could bring the whole of their ships to bear against half the British—assail them, that is, in detail. The Kiel Canal was built for the particular purpose of splitting the British navy; in other words, of doubling the fighting power of the German fleet. It accomplishes for German defense precisely what the Panama Canal does for the defensive powers of the American navy. Not the least significant fact in the present situation is that the Kaiser did not go to war until this canal was finished—in its reconstructed form. It was formally opened in June, 1914, about a month before the famous ultimatums were sent.

THE BRITISH NAVY ON DOGGER BANK?

In the present difficult situation, therefore, one thing may safely be assumed: England will not play into Germany's hands by dividing its fighting fleet into two parts. That would undo all the preparatory work of Sir John Fisher, already described. Her main policy seems to be a waiting one: to pen up the German fleet; to render it useless in the present struggle; to prevent the escape of any part of it, such as a cruiser squadron, into the Atlantic, where it might prey upon British commerce, and perhaps engage the British cruisers which are patrolling the trans-Atlantic lanes; and to hold itself in readiness for any possible desperate attempt the Germans might make at an engagement. Its position is obviously the one place where it can best accomplish these purposes. It has to watch two places: Wilhemshaven and the general region at the entrance of the Elbe River and the Kiel Canal; and the Skagerak. Any dashes which the Germans make must come from one of these two points. According to naval experts, a place midway between the two is naturally indicated as the position for the heavy British ships. There is thus a prevailing belief that the main strength of the English is located somewhere at the Dogger Bank. This is a shallow area in the North Sea, the northern section of which is about equally distant from the German and the English coast. The shallow water would furnish excellent anchorage to a fleet of battleships. Such a squadron, stationed in this spot, would be in instant readiness to meet a German sortie from either point. The naval strategist is, therefore, pretty likely to locate the British battleships in these waters. Others believe that it lies safely protected off some British harbor, instantaneously ready to go into action. What one has in mind in discussing this situation, of course, is the efficient fighting contingent, that is, the battleships. These are faced by the usual screen of cruisers and torpedo flotillas. It may also be safely assumed that there are other cruiser squadrons at advantageous points, such as the English Channel and the waters in the north, to prevent any raiding expeditions of German cruisers. The force which made the raid into Heligoland, sinking three German cruisers and two destroyers, and the one that had an unfortunate tussle with German submarines, losing three cruisers, probably represented these outlying expeditions. That a squadron of cruisers is patrolling the Atlantic trade routes is also no secret.

WHERE THE GERMAN SHIPS LIE

These being the probable dispositions of the English ships, where do the naval experts place the German? We may take it for granted that the main purpose of the Germans is the same as that of the English; that is, to keep their fleet together, to hold it as a single unit for the time when it may be called upon to strike. Most writers assume that it is lying somewhere near Wilhelmshaven, or in the Elbe, under the protection of land fortifications. The best authorities regard this as hardly likely. Unquestionably, Germany has allotments of cruisers, torpedo flotillas, and submarines at these places, as well as at the naval station of Heligoland, for the purpose of making raids; it is hardly likely, however, that she has located her great fighting forces in these waters. The danger of torpedo attacks would be too great. Indeed, had she risked her battleships anywhere near the North Sea, in all probability British ships would long ago have had tried to "dig them out." It is more likely that they are in the Baltic, not far removed from the Kiel entrance to the canal. In the opinion of some observers they may be located directly in the canal itself; if their main object is to hide until the war is over, here certainly they would find their most protected haven. On the other hand, the necessities of the situation really demand their presence in the Baltic. They have a particular duty to perform here, not unlike that which the English ships have in the North Sea. England has to seek out and destroy the German navy, to which its own is immeasurably superior; similarly the German fleet has to seek out and destroy the Russian, over which it has an even greater proportional preponderance. Up to the present writing it has had about as much success in attaining this object as the English fleet has had in achieving its particular aim.

LITTLE FIGHTING ON THE SEA

As is not unusual in time of war, the operations of these great armadas have sadly disappointed expectations. In the last few years both English and German romancers have amused themselves by picturing the approaching naval contest between England and Germany. Many prophetical "Battles of the North Sea" have made their appearance.

Nearly all have agreed upon the probable sequence of events. On the declaration of war, the German writers have told us, a German torpedo flotilla would steam into the North Sea and put large numbers of English battleships out of action. Innumerable attacks by destroyers, submarines, and floating mines would follow in rapid succession. Perhaps these torpedo attacks have taken place; the news, however, has not yet reached the public; early German reports of the sinking of half a dozen English battleships off Hull clearly represented not what had actually happened, but what was expected to happen. Such attacks as have taken place, it may be assumed, have failed; had Germany succeeded, she would not have hesitated to publish the fact. The only events that have even remotely substantiated these early fancies have been the sinking of the cruiser *Amphion*, probably by an unanchored mine, perhaps by a submarine, and of the cruisers *Aboukir*, *Hogue*, and *Cressy* by submarines. These events clearly indicate that Germany is attempting to live up to her generally accepted rôle in the North Sea problem. The afflicted cruisers represent a genuine loss to Great Britain; the action of the submarines unquestionably indicates seamanly skill of a high order—rather higher than English critics of German sea power have attributed to her. A successful submarine attack upon outlying cruisers of the third and fourth class, however, is a very different thing from a real penetration of the battleship line. England's real command of the sea rests upon her sixty battleships, her nine battle cruisers, her fifty-one armored and heavily protected cruisers. These not only enormously outnumber the German units, but they are larger, swifter, and have more powerful armaments. Unless the German submarines and torpedo boats reach this fighting force, England can stand the destruction of a large number of lighter and obsolete vessels without appreciably endangering her present naval position. Prognostications in a naval situation like this are unwise. If the German navy

THE FIELD OF THE SEA CAMPAIGN

THE ENGLISH TASK IS TO BLOCKADE WILLIAMSHAVEN, THE MOUTH OF THE ELBE, AND THE ENTRANCE TO THE BALTIC THROUGH THE SKAGERRACK AND CATTEGAT WITH COVERING SQUADRONS OF LIGHT VESSELS. THE BATTLE FLEET IS PROBABLY AT ROSYTH OR ON THE DOGGER BANK

performs such a feat, however, it will justify all the praise that has been bestowed upon it. For this English battle force is thoroughly screened by cruisers, torpedo boats, destroyers, submarines, and mines, through which the German attacking force will have to pick its way. The obliteration of a few detached cruisers will be child's play compared to an operation of this magnitude. Unless Germany can do this, however, she can hardly disturb the present status quo.

Does this mean, therefore, that the German High Seas fleet is rendering no service to the fatherland in the present war? Hardly that. Its mere existence in itself constitutes an indispensable service. The outnumbered German fleet, even though it is hardly prepared to take effective action, is a real governing element in the protection of Germany. It keeps the British battleships eternally watchful in the North Sea.

THE WAR VALUE OF THE FLEETS

As things stand at the present writing (October 1st) the British navy is the dominating force in this great European war. Naval experts all over the world are gazing at the spectacle with admiration. England, despite the most devastating war in all history, is still going on virtually intact. Its great mercantile fleet is still plowing all the seas, weakened only slightly by the few ships lost and detached for service in the navy. Its factories are still getting their raw materials from all parts of the world; the wheels are still turning, hardly interfered with by the war. The nation is still importing as freely as before the foodstuffs essential to its very life. On the other hand its greatest rival has suspended its commercial life. Germany's merchant fleet of 5,000 ships is either lying useless at the wharves of many nations or is falling daily a prey to British marauders. The ordinary newspaper reader cannot faintly picture the extent of this demoralization. In the United States the paralysis is so profound that even a neutral ship will not go to sea with a cargo destined to a port anywhere near the German shores of the North Sea. American vessels are chary of taking cargoes even for Rotterdam, in Holland, for underwriters can hardly be persuaded to insure such cargoes. There is no reasonable justification for this attitude; commerce between American and Dutch ports ought to be free and easy; the spirit that prevails, however, is not a reasonable one. A fear simply overhangs the mercantile community that such an enterprise is a hazardous one. German mails have almost ceased. The German cables are cut. German factories are idle. Germany's business organization exists in a state of suspended animation. The great German economic machine, built up by forty years of aggressive and intelligent enterprise, is lying rusty and unused. The amateur statistician can figure concerning the financial losses. Thus German commerce amounted to about $5,000,000,000 last year; at this rate, its cessation means a loss of about $13,000,000 a day—this in addition to the enormous cost of conducting the war. England's naval preparedness, the impregnable battleships she has stationed in the North Sea, has caused this calamity. Should the military operations stop to-day, the English navy unaided could probably win the war. It would merely have to sit tight in its present position. With the English economic machine running and the German economic machine shut down, time alone would settle the dispute.

BRITISH NAVAL-MILITARY ADVANTAGE

But this is not all that England's sea power has accomplished. It gives England a tremendous military advantage. Because she controls the sea, England has established a ferry line across the English channel for the transportation of British troops. Two weeks after hostilities began she had 125,000 completely equipped soldiers fighting on the firing line in Belgium. Reports seem to indicate that these troops, arriving at a critical moment, saved the situation for the allies—that they turned the military balance against Germany in the Paris campaign. Similarly France, a few days after mobilization, was bringing native Algerian troops across the Mediterranean. Sea power again! England is impressing five continents into the warfare on Germany. At this writing troops are sailing, or preparing to sail, from Canada, South Africa, Australia, New Zealand, India, and Egypt. All these outlying sections have been suddenly transformed into recruiting stations for the British army. Every ocean highway has become merely a line of communication leading directly to the battle front in Europe. And, in addition to all these advantages, this same mastery has enabled Great Britain leisurely to sail the seas, picking up the German colonies.

Will this situation persist indefinitely? Can Germany do nothing, besides attacking with submarines and torpedo boats, to destroy this British sea supremacy? Nature aids her; the coming winter months will severely try the endurance of the British navy. No one can comprehend how a long, tedious vigil, day after day and night after night, momentarily overshadowed by the fear of torpedo and submarine attacks, wears on the nerves of the hardiest officers and men. This experience will be harder on the English than the Germans, because their position is much more exposed; the "psychological factor," that is, is against them. In the fall and winter months the North Sea becomes more disagreeable; the weather gets cold and dirty, and fogs are an every day annoyance. After waiting for these influences to wear down the enemy and after a few more submarine attacks, very likely successful ones, the Germans might suddenly issue forth and tackle the enemy. A daring enterprise of this kind is not probable; it is, however, possible.

WHAT A MODERN SEA FIGHT IS LIKE

WHAT WOULD HAPPEN TO-DAY FROM THE TIME OF SIGHTING THE ENEMY'S SHIPS TO THE TIME HIS LAST FIGHTING UNIT WAS DESTROYED

BY

JOHN M. OSKISON

UNTIL the German fleet comes out into the North Sea or the French fleet engages the Austrian fleet in the Mediterranean, there is only one fleet battle under approximately modern conditions to indicate the character of a fleet action in the present war—the battle of Tsushima between Admiral Togo and Admiral Rodhjestvenski.

Since Tsushima, ships have grown tremendously in size. To-day's superdreadnaught is of 27,500 tons, as compared to 13,500 tons for Admiral Rodhjestvenski's flagship. In armor protection and battery power there has been improvement, and in speed the increase has been tremendous. Rodhjestvenski at Tsushima could get no more than 11 knots out of his travel-worn fleet, and Togo's best was 16 knots; whereas the United States recently sold to Greece the old *Idaha* and *Mississippi* (first class battleships otherwise) because they could steam only 17 knots. The modern battle fleet would go into action at a speed of 20 knots.

Since Tsushima, wireless has been somewhat improved, the submarine has come into the reckoning, and the sea aeroplane has found a place with the fleet. Yet to-day's story of a fleet battle would not be radically unlike that of Togo's achievement; and n essentials the Japanese admiral followed tactics as old as naval warfare.

A fleet commander's fighting ships are floating gun platforms; if they are modern, they will have the highest speed consistent with the greatest possible concentrated destructive power for battling in all conditions of wind and weather on the high sea. If all these floating gun platforms are ready to take the sea at their best speed, and if they are carrying their best guns and their best trained crews, the problems of battle are reduced to the handling of the ships and the handling of the guns they carry. Most important is the handling of the guns.

This war's battle, if it comes, will be fought between the English blockading fleet and the German fleet trying to run the blockade.

The superdreadnaughts and dreadnaughts (battleshps and big-gun cruisers) have been overhauled; if there are any guns of newer design and more effective range they will have taken the place of those already in the turrets. Maximum supplies of shells, filled with the highest explosives known to naval use are in their magazines—they may even carry shells for their 12-inch, 13-inch, and 14-inch guns in most of the magazines designed to supply the smaller guns, for the object of a fighting fleet is to crush the enemy, and a big gun shell which can tear a gaping hole through armor at 12,000 yards will do more damage than many 3-inch shells.

Off the big fighters has come every bit of wood, decks are cleared, hatch covers bolted, and davits folded down, boats are put ashore along with chests and tables, the officers' furniture, and, on the day of the fight, even the hammocks will go overboard. In the hell-fire which follows the explosion of a shell aboard ship no burnable thing will go unburned; and fires breaking out on deck or inside the ship are only less disastrous than the enemy's fire. From all except the most modern of the giants the bridges are down, for a portion of them is wood. Days before the battle the crews of the fighting fleet are eating from metal plates sitting cross-legged on the steel mess-deck; in the ward-room the officers find neither wooden chairs nor tables.

Next to the powerful battleships in importance to the fleet commanders are the battle cruisers. They are battleships (some of the latest carry twelve 14-inch guns) which have sacrificed armor protection for speed. They are of unequaled value to take care of such of the enemy's ships as have to drop out of the fighting column with battery power crippled; and if it should turn out that the battle cruiser's effective range is greater than that of the enemy's armored ships, then she becomes an offensive unit of equal value with her dreadnaught sisters.

Other ships which prepared for battle are the armored cruisers (a class no longer built); scout cruisers, light, carrying only small guns, but capable of making 27 or 28 knots; torpedo boat destroyers; and service ships. Among these are tenders, called "mother" ships, for the destroyers—one to each flotilla of five or six destroyers. On the tenders are constructed the launching and landing platforms for the air scouts. Repair ships and hospital ships complete the fleet.

The threat of Mr. Winston Churchill to "go in and dig out" the German fleet can not be taken seriously—nothing would suit the Germans better! But out the blockaded fleet must

come. A modern navy does not exist to be saved for exhibition purposes after the war is over; its job is to fight the enemy for mastery of the sea. Staying in port is demoralizing to the personnel in time of war. This the commander of the blockaded fleet knows, and he knows, too, that his enemy who is maintaining the blockade is getting first rate daily practice in handling ships, and hardening and tempering crews out where the fighting will occur.

WHEN THE GERMAN FLEET COMES OUT

So the Germans at some time may be expected out; and without trying to prophesy in detail it is possible to explain the general aspects of what naval experience would teach us to expect would then happen. The Germans will come several hours before dawn for when the fight begins they want to be quite clear of the port with sea room in which to manœuvre. A tactical advantage rests with the issuing fleet in that the fighting ships of the blockaders must keep as far away from the port as they can and be certain of intercepting the enemy as they come out. During their blockade of Port Arthur, the Japanese battleships remained at the Elliot Islands, 65 miles away. By contrast with the tactics of to-day's blockading commander, Admiral Sampson's ships formed a flat arc within a few miles of Santiago harbor; and at night two of his battleships actually drew up close enough to cover the harbor entrance with their searchlights. That was all right for Sampson, for he had learned that he had nothing to fear from mines, and that the guns of Moro Castle never fired in attack but only replied to attacks. It is safe to say that English battleships, could take no such liberties off the mouth of the Elbe!

Before being discovered by the English scouts, the German fleet would probably be able to pass the clear zone maintained by the opposing submarines and destroyers. Once beyond that, however, the English scouts would sight it. Then would begin the first contest—that between the wireless operators aboard the two fleets. On board the first scout to sight the German fleet, the operator would begin to call the English admiral's flagship; and at the same time, operators on board the German ships would be trying desperately to synchronize their apparatus and "muss up" the scout's message so that it could not be understood.

There would be better than an even chance that the German wireless could successfully interfere. In that case, the scout would fly at its highest speed to the nearest tender carrying an aeroplane. Off would wing an air scout; but knowing that hostile air scouts would likely be aloft and that in thick weather the flying machine can not be sure of finding its way, the fastest of the scout ships would press on.

Other scouts would hurry forward to observe the strength, disposition, and direction of the German fleet; aboard them would be men trained to recognize, from long study of plans and silhouettes, every ship in the enemy's fleet; aboard the English fleet commander's flagship would be his staff, whose members know the efficiency in speed, armament, and personnel of every ship in the German fleet. They would have charted and platted every possible battleground. As his scouts brought him news of the progress of the issuing fleet, the English admiral in command would mark its location on his chart and study its formation in reference to his own plan of attack.

Once beyond the clear zone the German fleet commander would change from cruising formation (scouts ahead, fighting ships in double column, cruisers and destroyers alongside, and tenders, service ships, and hospital ships behind, each convoyed by more destroyers and swift cruisers) to column, or "line ahead," as the English call accepted battle formation. One behind the other, as closely as they may safely be navigated (probably not more than 400 yards from bow to bow) would steam the fighting ships. On the fifth ship in line would fly the flag of the admiral second in command, while from number nine would fly the flag of the admiral third in rank—and so on, each division of four fighting ships being under a division commander.

To-day both fleets in a sea battle would have great "mobility"; they would maintain a speed of about twenty knots. England might put more than 30 battleships and battle cruisers in line capable of making 21 knots in battle formation; there are 17 or 18 fighting ships in the German navy which can steam at nearly 20 knots together. Of course, under these conditions, submarines would hardly play a part in the actual battle, for the best of them now in service are capable of only 18 knots on the surface and 12 knots submerged.

As the German fleet steamed out on its chosen course, its armored ships riding high enough to show from 6 to 8 feet of heavy armor above the water line, the English fleet would be coming together in column. Already the admiral in command would know the strength of his enemy and he would probably retain in his own fighting column only those ships that could outrun the enemy's ships in column. Then he might choose to attack either the head or the flank of the German fighting column.

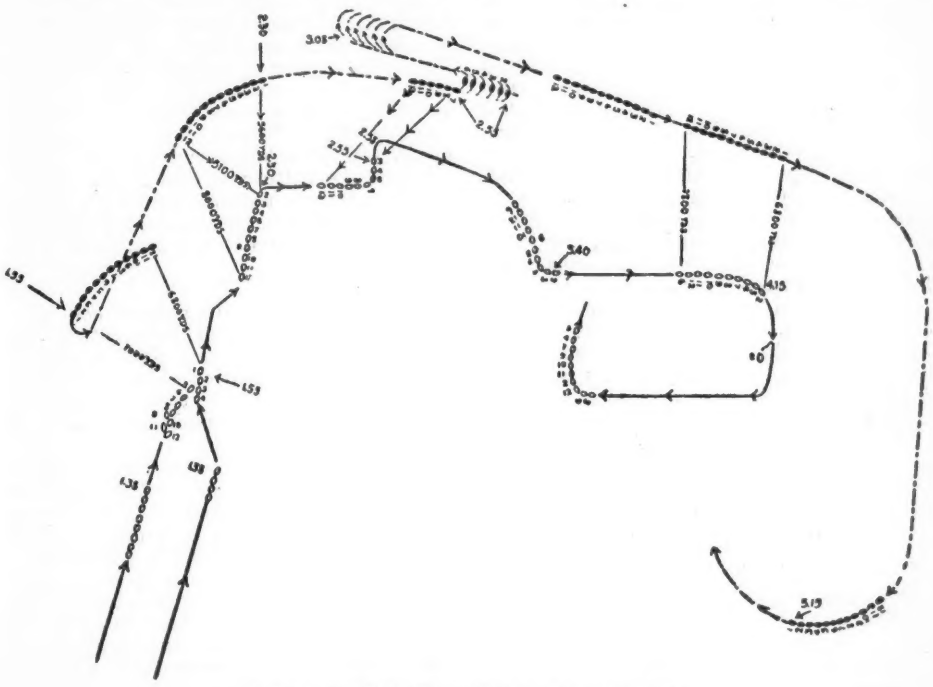
Togo, at Tsushima, did that. He knew that his four battleships and his eight battle cruisers could hold together at a speed of 16 knots; he knew that the Russian ships, having been long at sea (they left the Baltic naval base at Cronstadt September 11, 1904, and had been at sea continuously, except for stops in neutral ports for supplies and such repairs as could be made by the fleet's own men), must have foul bottoms, and must be several knots slower than his own. Togo's scouts reported that the Russian ships sat very low in the water—they were overloaded with coal and stores so that their armor belts were just about at the water line. During Admiral Rodhjestvenski's first ma-

nœuvre, before the battle opened, to swing his eight battleships and four armored cruisers into column the best speed he could get from his first division, which took the head, was 11 knots.

Here was a big advantage in speed for the Japanese ships; how did Togo utilize it? From the Russians' right (starboard, if you like), at a distance of about 12,000 yards, Togo sent his twelve ships flying diagonally across the front of Rodhjestvenski's column. When his last ship had cleared the Russian flagship, he turned to the left to run alongside the Russian ships in the opposite direction; with his own ship about abeam of the Russian admiral's, Togo countermarched, turning in toward the enemy in order to bring his ships to a range of 7,000 yards.

Steaming alongside, Togo began to forge ahead and bear toward the right; his plan was to "cross the T," or "cap" the Russian column so that the fire from the guns of his fleet could be concentrated on the leading ships of the Russian column. As a matter of history, the fire of the Japanese ships was concentrated first on the fifth ship in the Russian line, which through faulty manœuvering was nearest to them as they countermarched. Within five minutes that ship was disabled; it dropped out of line, and sank within 57 minutes of the opening of the engagement.

Five minutes to dispose of one battleship! Then Togo succeeded in "capping" the Russian column, but as he pressed against the head



FLEET ACTION OF MODERN BATTLESHIPS

(BLACK ARE JAPANESE SHIPS, AND WHITE RUSSIAN). TSUSHIMA, IN WHICH ADMIRAL TOGO DEFEATED AND DESTROYED ADMIRAL ROHDJESTVENSKY'S FLEET, MAY 27, 1905. THE BATTLE BEGAN AT 1:55 P. M. WITH THE JAPANESE FLEET CONCENTRATING ITS FIRE ON THE FIFTH RUSSIAN SHIP WHILE THE RUSSIANS WERE TRYING TO GET INTO LINE OF BATTLE. NO. 5 SANK 57 MINUTES AFTER THE BATTLE OPENED. BY 2:30 P. M. THE JAPANESE FLEET, STEAMING 16 KNOTS TO THE RUSSIANS' 11 KNOTS, HAD "CAPPED" THE RUSSIAN BATTLE LINE SO THAT THE FIRE OF ALL THE JAPANESE SHIPS WAS CONCENTRATED ON THE LEADERS OF THE RUSSIAN LINE, WHILE THE LAST RUSSIAN SHIPS WERE NEARLY OUT OF THE BATTLE. NO. 2 DROPPED OUT OF THE BATTLE FOR A WHILE, AND THE RUSSIAN FLEET TRIED TO GO ASTERN OF THE JAPANESE, WHO PREVENTED THIS BY A SHIPS-ABOUT MOVEMENT. BY 4:15 P. M. THE TWO FLEETS WERE AGAIN IN RANGE AND THE SUPERIOR SPEED OF THE JAPANESE FLEET WAS ENABLING IT TO "CAP" THE ENEMY AGAIN. TO AVOID THIS, THE RUSSIANS PRACTICALLY MADE A CIRCLE. BY THIS TIME IT WAS DARK; THE JAPANESE FLEET SPLIT AND CAME UP ON EACH SIDE OF THE RUSSIANS (NOT SHOWN IN THE DIAGRAM.) THE FIGHTING WAS ABOUT OVER AT 5 O'CLOCK, AND THOUGH THE RUSSIANS MAINTAINED A SEMBLANCE OF A BATTLE LINE THE SHIPS WERE ALL SO DAMAGED THAT ALL BUT FIVE SUNK OR SURRENDERED; THREE ESCAPED TO MANILA AND WERE "INTERNED"; ONE RAN ASHORE; ONLY ONE ANCHORED SAFELY IN VLADIVOSTOK. THE JAPANESE DID NOT LOSE A SHIP. THE BATTLE WAS WON BY SPEED, TACTICS, AND GUNNERY. THE RUSSIANS WERE SUPERIOR IN ARMAMENT AND GUNS, WITH 8 BATTLESHIPS AND 4 CRUISERS TO 4 BATTLESHIPS AND 8 CRUISERS OF THE JAPANESE

of his enemy's column, decreasing the range to 5,000 yards when he saw that Russian gunnery was as bad as Russian tactics, Admiral Rodhjestvenski ordered a change of course four points (one eighth of a circle) to the right. Too late the change was ordered, and his flagship, upon which the Japanese fire was mainly concentrated, received her worst hurt while running on that course; the change of range, too, affected the efficiency of his own gunfire, for by this time his "fire control" system was all but useless and his sights were either knocked to pieces or obscured by the clouds of coal dust raised by the shock of Japanese shells exploding on board.

On that day the Japanese introduced to the naval world their new shell—a thin-walled missile a foot in diameter and four feet long, filled with an explosive which broke the walls of the shell into a vast number of fragments and poured out a volume of terrible flame. They exploded on contact—Captain Semenoff, observer aboard the Russian flagship, said that they seemed more like mines than shells, for contact with any obstacle—handrails, guys, or funnels—was sufficient to loose their awful charge.

The first range-finding shots from the Japanese 12-inch guns went over the Russian flagship; Semenoff said that he joked about them with some of the other officers.

THE "PORTEMANTEAUX" SHELLS

"Those must be the famous 'portemanteaux' eh?" laughed one of the Russians.

"Yes, those are the 'portemanteaux'!" affirfirmed Semenoff, who had been aboard the Russian *Cesarevitch* at Port Arthur, where the Japanese shell had received its nickname. They came, many of them, tumbling end over end. whining instead of coughing as a big-gun shell should.

Presently they began to find the Russian flagship; soon there was a literal rain of fire upon her deck. One of the "portemanteaux" entered a gun port in the forward turret and exploded. Some bags of powder stored inside (where they shouldn't have been) were ignited, and the roof of the turret was lifted; it landed on deck leaning against the side of the turret. On deck nothing but a confused mass of distorted iron; fires were breaking out everywhere aboard—barricades of drenched hammocks, intended as shields from flying steel splinters, flared up an instant after the bursting of a Japanese shell on deck. Soon all the plating forward of the heavy armor belt had been shot away, and the ship resembled a monitor in appearance. Half an hour after the beginning of the battle, the Russian flagship's steering gear was disabled and she had to drop out of line. By this time only one of her big-gun turrets was left in commission.

Few of the "portemanteaux" shells of the Japanese ships penetrated the enemy's armor belts. They were more like terrible shrapnel fire, disabling the enemy's upper works, jamming his guns and crippling his turrets, cutting his signal masts and tumbling his funnels on deck, spreading destruction among crews with every scattering explosion, Aboard one of the Russian ships, a sailor was hit 130 times by fragments from a single shell!

Twice the Russian admiral in command was wounded; the second time a fragment of shell struck him as he stood inside the conning tower and drove a piece of his skull into the brain; he was carried to a gun turret, for he would not go to the dressing room to have his hurts examined. There he sat for many minutes, hardly conscious, looking up now and then to ask how the battle was going. His flag still flew from his battered and disabled ship, so that Nebogatoff, next in rank of the fleet admirals, could not come up and take command.

PICKING OFF SHIPS ONE AT A TIME

With the flagship out, number two, which now led the line, received the attention of the Japanese gunners. At that time, so well had Togo's "capping" tactics succeeded, all twelve ships of the Japanese fleet could concentrate their fire upon the leading ship at ranges varying from 5,100 to 5,600 yards.

Round and round in circles, still battered by fire from the Japanese ships which passed her, steamed the Russian flagship. Two Russian torpedo boats had been instructed before the battle to watch for a possible disablement of the flagship. In that case they were to stand by to take off Admiral Rodhjestvenski and his staff, transfer them to another ship which would then become the flagship. But these boats were not to be seen; and automatically the actual command of the fleet passed to the captain of number two ship in line.

Semenoff said that during the minutes between the disabling of the flagship and the removal at last of the admiral and the two members of his staff that could be found in the darkened ship (one of them was in the lower fighting station of the conning tower sitting beside a lighted candle) the ship was an inferno of fire and destruction. Every big gun was silenced, all signal apparatus was gone, the flag halyards burned, and the sailors were huddled in groups waiting in a stunned silence for a word of cheerful leadership. Down on the mess-deck were standing, sitting and lying, groups of the wounded. They began at last to feel their hurts, and "the dreadful noise of deep sighs and half-stifled groans was audible in the close air. Ahead somewhere, in white coats stained with red splotches, busy figures of surgeons moved about, and toward them all these piles of flesh, clothes and bones turned, and in their agony dragged themselves."

A Japanese shell finally penetrated the armored deck and tore a hole through which the water began to pour. The commander of the signal corps gathered a group of his men and started down a hatchway to help repair the rent; another shell dropped, and when Semenoff could see, after the smoke had cleared, there

was no commander, no squad of signal men, no hatchway ladder!

PLAYING "FOLLOW THE LEADER" WITH DEATH

It became apparent to the captain of number two ship, now at the head of the column and directing the one manœuvre possible, that of "follow the leader," that his position was untenable. He turned sharply to the right, the remaining nine ships, all battered and on fire, following. For 25 minutes he steamed on this course, while the Japanese column raced to maintain its position as "capper." As the ships of Togo's fleet drew far up and crossed the "T," the Russian captain made a quarter turn to the left, to dodge behind and attack the rear of the Japanese column. Togo met this by a "left about," thus shifting his column to the Russian's right.

That would be no better for the Russian commander, so he turned again, this time more than eight points to the right, in an effort to bring his ships to closer grips. Togo led his ships in another ships-about movement toward the right. At this point number two in the Russian column caught fire—the paint, which was too fresh, on her exposed side was blazing furiously, and she had to drop out of line to extinguish the blaze. She was out nearly an hour, and meanwhile number three came up to head the line. This was only 45 minutes after the first Japanese ship opened fire.

As the Russians turned to the right in this last manœuvre, they passed opposite to the Japanese still making their left-about movement. Number four in the Russian line offered the best target. In six minutes twelve 12-inch shells struck her. Before the battle ended, 34 fires broke out aboard number four. Three of these broke out among the hammocks piled just forward of the bridge, others started from the hawsers. Three times smoke from such fires drove the occupants from the conning tower; once smoke from a hawser fire was drawn down to the forward engine room by the blowers, and this compartment had to be abandoned. But number four stood up under the pounding, survived the night of May 27th, and was surrendered to the Japanese next day.

On a diagram of the battle you may follow in detail the movements of the fleets. The weather was thick, and between five and six o'clock, after three of the Russians' ships had been sunk, the Japanese lost sight of the Russians, command of whom had at last been turned over to Nebogatoff.

Those on board the torpedo boat could tell about the sinking at 5:30 of the ship whose side had taken fire because of fresh paint; they had details, too, of the sinking of that unlucky number five which first became the target of the Japanese guns at 1:55, and went down at 2:52. From the deck of the torpedo boat, Semenoff watched the abandoned flagship. It was growing dark—along the line of the Japanese ships flashes from their guns twinkled incessantly. At 7 o'clock, a Japanese torpedo boat destroyer steamed near the flagship. But on that wreck aft was still one serviceable gun; it was trained on the threatening destroyer. The Japanese drew off to wait for a more favorable opportunity to deliver *a coup de grace*. On board the torpedo boat, some one shouted to Semenoff:

"The *Borodino*—look!" The *Borodino* had been number three in the Russian column. Semenoff raised himself on his hands (his legs were both stiff from wounds), but where the *Borodino* had been nothing was visible save a patch of foam!

Three Russian fighting ships went down that day. When the Japanese fleet lost the enemy's column, it separated in two divisions. Under Admiral Kamimura, a division of six cruisers ran into the cruiser and supply ship squadrons of the Russians. Kamimura fired upon them, destroying and scattering them; then Togo, coming to the scene of the firing, ran again into the fleeing Russian battleships. There were more shots poured into the crippled fleet before Togo drew off and left the field to his torpedo boat destroyers. During that night and the following day, the job was finished. On May 28th, four wrecks of the Russian battle fleet were surrendered to the Japanese; four others were sunk by gunfire and by torpedoes, one was scuttled by her crew; one got away, but ran aground because her compasses had been disarranged and was sunk later; one ship only of the Russian fleet got safely through to Vladivostock, the port to which the Baltic fleet had been bound; and three cruisers got to Manila, where they were "interned."

On the Japanese side, only one of her fighting ships, a battle cruiser, was temporarily disabled by the Russian guns; she left the column for a time during the fight, but came back.

Except for the surprising breakdown of the Russian fleet in tactics and gunnery, the battle of Tsushima would stand as a fair picture of a modern fleet engagement.

The German or the English would hardly repeat the mistakes of Rodhjestvenski. The loser would fight his ships far more intelligently.

We are waiting for such a thing as happens only once or twice in a hundred years. Between Trafalgar, 1805, and Tsushima, 1905, only two fleet battles on a large scale were fought. The Austrians defeated the Italian fleet at Lissa in 1866, Japan crushed China's navy in 1894, at the Yalu.

The English fleet has before it the same task that it had at Trafalgar, nearly 110 years ago. Its commanders must be ready to crowd into the few minutes of actual fighting that mean the Empire's life or death, the lessons of countless drills, of a constant preparedness.

The German fleet has before it the task of defeating the greatest navy in the world, of putting skill and study enough into their action to overcome the disparity of the two forces.

A NEW ROLE FOR SUBMARINE MINES

THEIR USE FOR OFFENSIVE WARFARE—A LESSON TAUGHT BY THE RUSSIAN-JAPANESE WAR—TORPEDOES AND MINES AMERICAN INVENTIONS—DAVID BUSHNELL AND HIS "TURTLE"—ROBERT FULTON AND SAMUEL COLT—THE HAGUE'S DECLARATIONS ON THE USE OF MINES—GERMANY'S REFUSAL TO ACCEPT ANY RESTRICTIONS

ALMOST every day stray newspaper paragraphs are revealing a situation that strikes most observers as a particularly revolting form of warfare. An innocent North Sea trawler hits a floating mine, splits in two, and sinks, usually with the loss of everybody on board. The iniquity of this proceeding consists in the fact that these victims are not ships of war, are frequently neutrals, and are exercising the unquestioned rights of neutrals to sail the open seas. The casualties, which are increasing in numbers, indicate clearly that some one is sowing the North Sea more or less freely with floating, unanchored mines. Primarily this belligerent intends these engines of destruction for ships of the enemies' fleets; the fact is, however, that they are just as likely to sink neutral vessels. There is little question, of course, as to which of the warring nations is planting these mines. Germany is the only one that can chiefly profit from such operations, as the waters in which the explosives float are frequented mainly by British war ships.

The Hague Conference formulated certain rules for the regulation of mines. These prohibit the laying of any kind of mines, anchored or unanchored, in the high seas, except within the immediate area of warlike operations. Germany strongly objected to these regulations, and agreed, instead of accepting the Conference's stipulations unconditionally, to observe them for five years. This period expired in 1912. The German navy is, therefore, free so far as its plighted word is concerned now to use unanchored mines in the present war.

Mines have an interesting and romantic history; for their beginnings, we must go back to our Revolutionary War. An ingenious undergraduate of Yale, David Bushnell, worked out the idea while still a college student. "Bushnell's Turtle," which he constructed, represented not only the first attempt at a submarine mine; it was also the world's first submarine boat. These two deadly engines, which play so important a part in the present struggle, originated in the same brain and at the same time. Bushnell's chief ambition was to construct a receptacle containing an explosive, which he could set off under the enemy's vessel—the submarine boat was built merely as a method of putting this amicable engine in position. The whole contraption, according to contemporary descriptions, was shaped something like a "round clam." The vessel was large enough to hold a man in sitting posture; its elevation and submersion was accomplished by letting water in and out; it had an elaborate mechanism for steering and propulsion. The navigator worked a couple of treads with his feet after the present fashion of running a sewing machine; this started a couple of paddle wheels on the outside, which furnished the vessel's motive power. The exterior wall held in place a large keg filled with gunpowder, ignited by a fuse; at the critical moment, the inmate released this, backed away quickly so as to save his own skin, and calmly awaited the pending destruction. Bushnell, after many experiments, finally made a night attack on the British cruiser *Eagle*, anchored off Staten Island. His submarine worked successfully; his torpedo exploded according to programme; owing to some mistake in calculation, however, it did not go off directly under the British vessel, but at a little distance away. All that Bushnell got for his pains, therefore, was a loud report and a huge geyser. The English seamen, although not destroyed, were considerably amazed. They had never dreamed of anything like this. The performance had about the same effect upon them that the appearance of the Zeppelins has had in the present war, the only difference being that they expected the Zeppelins, whereas Bushnell's torpedo took them entirely by surprise. Later in the war Bushnell let loose a fair-sized flotilla of his torpedoes against the British fleet at Philadelphia; the vessels, retiring in time, destroyed the new enemies, however, by letting loose all their broadsides. This "Battle of the Kegs," immortalized in a popular ballad of the day, represented the first use in history of floating torpedoes.

Bushnell's invention, though it apparently never succeeded in destroying a British ship, kept the English in a state of nervous excitement all through the war. They denounced it as a Yankee "infernal machine," and as outraging all the decencies of humane warfare. Robert Fulton, who took up the machine where Bushnell let it drop, met the same hostility. He conducted many experiments in France, and blew up several derelict vessels in the harbor of Brest in 1801. The French Government, however, refused to adopt the contrivance,

chiefly because Admiral de Pelly had "conscientious scruples against such a terrible invention." Fulton then took his idea to England, where likewise he had a cold reception. The English frankly said that they had no interest in encouraging a system of warfare that threatened to destroy its supremacy at sea—an attitude that has a certain historical interest in view of the success of German submarines in the present war. Fulton, on his return to America, found no reception for his torpedo and so centred all his energies on the steamboat. Other Americans, however, in the next forty years, enormously improved it. Samuel Colt developed the scheme of exploding fixed mines with electricity—now the basis for this effectual form of harbor defence. In the Crimean War the English sufficiently overcame their early hostility to use the submarine mine before Sevastopol; the American Civil War, however, first demonstrated its effectiveness. The Confederates had no navy; Union gunboats were constantly ascending their rivers, doing enormous damage. The Southerners, therefore, mined their streams, at times using beer barrels filled with gunpowder. These devices proved exceedingly effective, destroying many Northern ships; so effective, indeed, that they aroused the somewhat sluggish interest of European governments, which now began to manufacture submarine mines themselves. And so the Civil War established the torpedo, not only as an effective method of defense, but as an entirely legitimate one. Germany, having then no appreciable navy, protected her coast line in this way in the Franco-Prussian War. Despite this new attitude, European interest still steadily lagged. New inventions—the turreted battleship, the automobile torpedo, the modern strength of land fortifications—seemed to relegate, in the opinion of most European experts, the submarine mines to the scrap heap. It played little part in the Spanish-American War; the most dramatic episode in that proceeding, indeed, was the successful contempt with which Dewey ignored the possible presence of mines in Manila Bay.

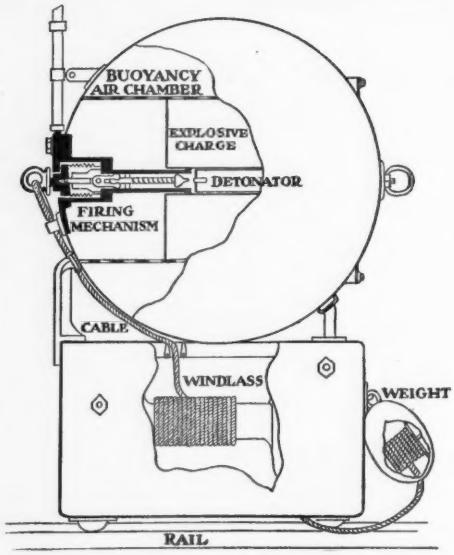
The Japanese War with Russia, however, changed naval opinion on this subject, as it did on many other things. This conflict presented the submarine mine in an entirely new rôle. Up to that time it had held a certain importance as a method of defensive warfare. Its use was almost exclusively to protect harbors and strategic places on the coast lines. The naval scientists had constructed a large and varied assortment of mines for this purpose. They all worked on the same essential principle. Fixed mines were placed in the water, at varying distances from the bottom. Electric currents connected these with a secret station on the shore. An operator stationed here could fire any mine simply by pushing a button or turning a key. With the whole channel mined and the mechanism in competent hands a hostile ship apparently could cross this field only at an enormous risk. Nearly all nations accepted this as the proper limitation of mines; their occupation, that is, was purely defensive. The Japanese and the Russians, however, now suddenly began to use these insidious machines for an entirely new purpose—for offensive warfare. When this conflict had finished, the submarine mine had taken its place with the battleships, the cruiser, the Whitehead torpedo, and the destroyer as an engine for attacking the enemy. It left the harbors and channels that had seemed to be its exclusive headwaters, and suddenly made its appearance on the high seas. The nations had to recognize this fact, whether they wished to do so or not; the hulks of twenty-four Russian and Japanese battleships, scattered all over the Yellow Sea, victims of the skilful use of submarine mines, emphasized this lesson in a way that could not be ignored. By 1903 the British navy had practically decided to abolish mines. It had disbanded certain mine fields that had defended its harbors for years. The experiences of the Russians and the Japanese, however, suddenly changed England's plans.

The Japanese use of torpedoes and floating mines practically destroyed Russian naval power in the Far East. That is, these machines so enfeebled the Russian fighting fleet that it demoralized it and reduced it to a ready prey for the Japanese. In all, the Japanese submarine mines destroyed fourteen Russian vessels, these including many of Russia's most powerful fighting units.

The Japanese, however, did not have the whole game to themselves. The Russians soon imitated their tactics and the final reckoning disclosed that Russia had lost fourteen ships this way and Japan ten; a startlingly large number in view of the comparative smallness of both fleets. Mines did greater destruction than torpedo boats—and these, in the hands of the Japanese, accomplished a great deal.

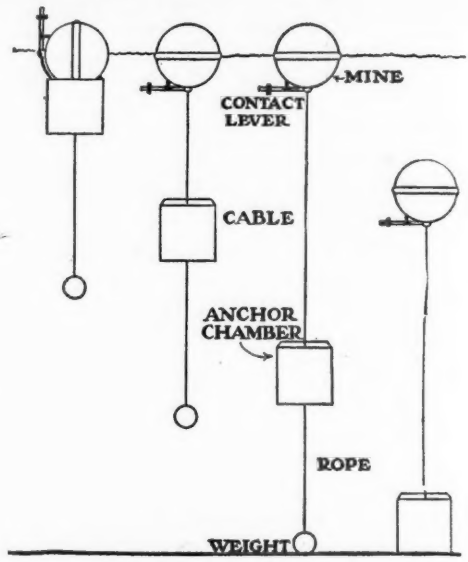
Germany's naval experts had carefully studied the Japanese war and had decided that the floating mines on the high seas formed an indispensable method of offense. The North Sea presented an admirable field for mining operations. It is an exceedingly shallow body of water—averaging perhaps 120 feet; and anchored mines can be placed almost anywhere on it. Germany could not rest content with mining her own coast or even that of England; she proposed to go out into the watery highway itself and string death-dealing machines in the way of British commerce. England, on the other hand, has organized a special service in her navy for sweeping up mines.

Germany plans not only to use her mines in this haphazard way, but in actual warfare. Her naval arrangements call for scattering mines in a naval engagement—if one ever takes place. The idea is to lay them in the way of fighting ships, either to destroy the enemy or compel it to change the course. The German navy regularly practices elaborate manœuvres



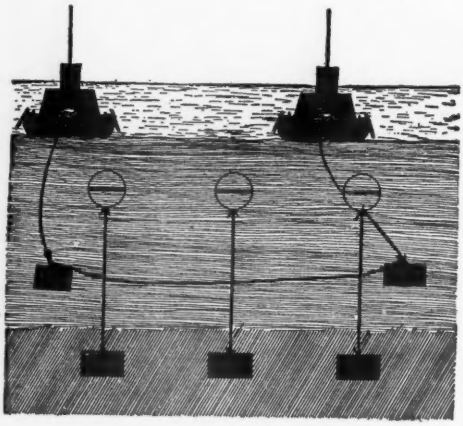
THE MECHANISM OF A MINE

IT CONSISTS OF THE MINE ITSELF RIGGED WITH A LEVER FOR SETTING OFF THE EXPLOSIVES, AN ANCHOR CHAMBER CONNECTED WITH THE MINE BY A CABLE WHICH IS AS MANY FEET IN LENGTH AS THE MINE IS TO BE UNDER WATER, AND A WEIGHT CONNECTED WITH THE ANCHOR CHAMBER



THE POSITION OF A MINE

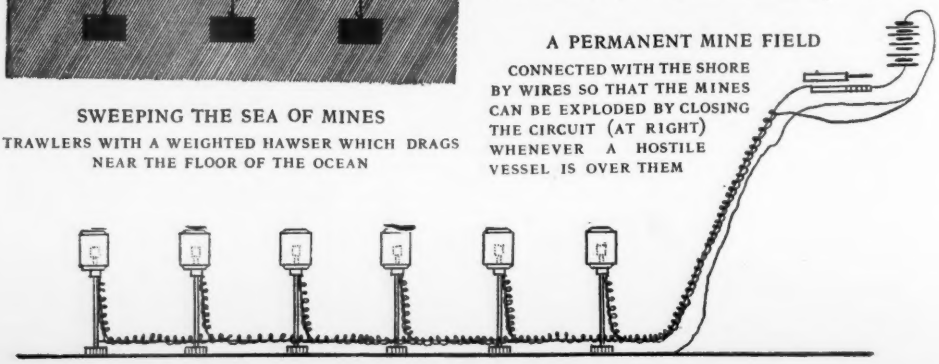
WHEN THE MINE IS DROPPED OVERBOARD AS SHOWN (ON THE LEFT) THE ANCHOR CHAMBER PLAYS OUT CABLE AND SINKS UNTIL THE WEIGHT REACHES THE BOTTOM (AS IN THE THIRD DIAGRAM) WHICH STOPS THE CABLE FROM UNWINDING FURTHER AND PULLS THE MINE BELOW THE SURFACE (AS IN THE RIGHT HAND DIAGRAM)



SWEEPING THE SEA OF MINES

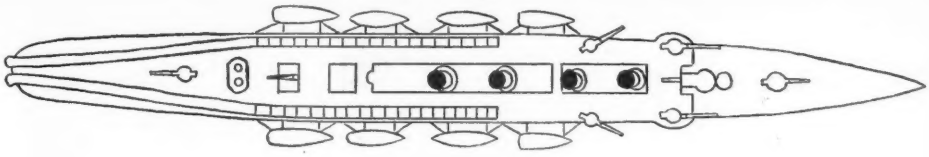
TRAWLERS WITH A WEIGHTED HAWSER WHICH DRAGS NEAR THE FLOOR OF THE OCEAN

at this game. The plan is to station a mine-laying vessel in the rear of a regular battle line. As the German ships approach the enemy this special vessel trails along behind, laying her floating machines. As they come nearer the British fleet, the main line will make a slight turn. This will leave the mine field directly in the path of the approaching enemy. The vessels must then either go to their destruction, or make such changes in their formation as to demoralize considerably the battle arrangements. The Germans also figure that these floating mines will unnerve the enemy; part of the scheme, therefore, contemplates using, not real mines, but wooden dummies painted so as



A PERMANENT MINE FIELD

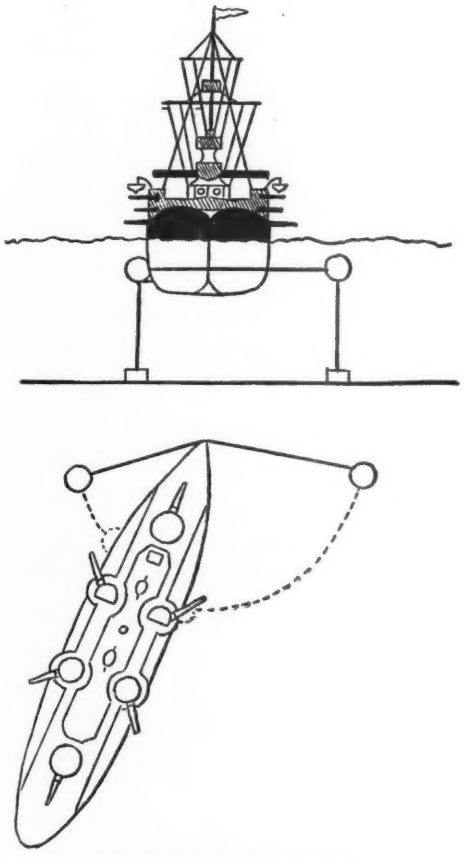
CONNECTED WITH THE SHORE BY WIRES SO THAT THE MINES CAN BE EXPLODED BY CLOSING THE CIRCUIT (AT RIGHT) WHENEVER A HOSTILE VESSEL IS OVER THEM



AN ARMED MINE LAYER

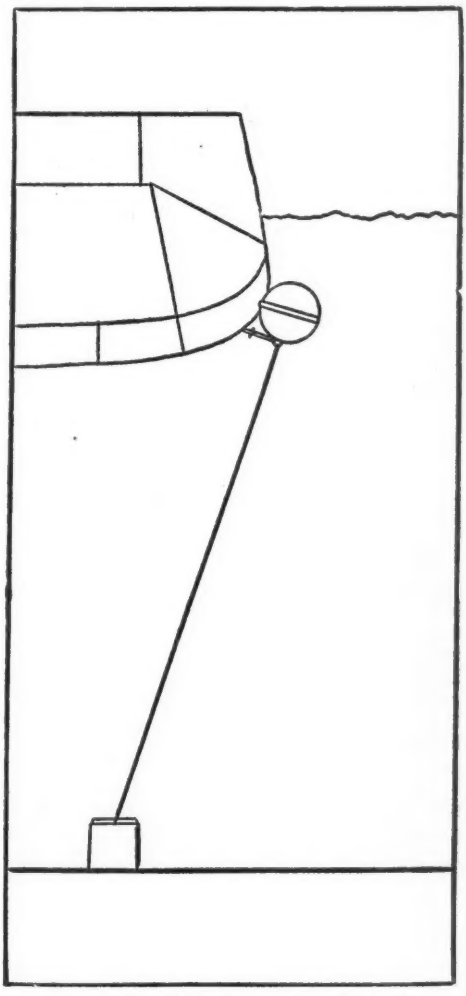
A DECK PLAN SHOWING THE MINES AND THE WAYS FROM WHICH THEY ARE DROPPED OVER THE STERN

to look exactly like them. Unprejudiced observers, it must be admitted, are not much impressed by this scheme. They point out that mines freely floating in the battlefield, with the ships of both sides constantly manœuvreing about, are just about as likely to strike friend as enemy. The necessity of avoiding them is as likely to disconcert one side as the other. However, the Germans claimed to have taken precautions that will secure them against accidents of this kind.



HOW MINES CATCH A SHIP

MINES SOWN IN GROUPS CONNECTED BY ROPES ARE DRAWN IN ON BOTH SIDES OF A SHIP WHICH IS SUBJECT TO TWO EXPLOSIONS SUCH AS SANK THE BRITISH CRUISER "AMPHION"



HOW THE CONTACT LEVER WORKS

THE MINE IS SO DESIGNED THAT IT TURNS AS IT SLIPS ALONG THE SHIP'S SIDE SO THAT THE LEVER WILL CERTAINLY COME IN CONTACT WITH THE SHIP AND EXPLODE THE CHARGE

SHARPSHOOTERS OF THE SEA

BY

JAMES MIDDLETON

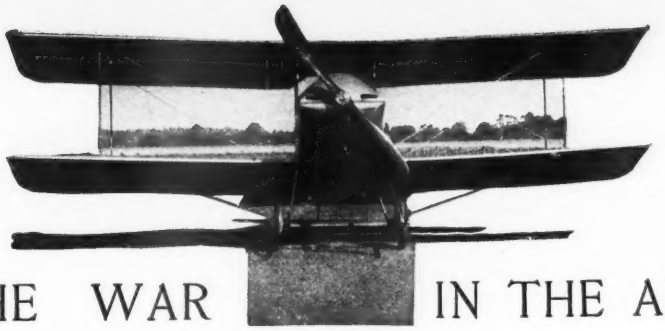
IN THE minds of naval authorities there is little doubt as to what is the most significant development of the war thus far. That is the sinking of five important warships by submarines. On September 1st a German "Unter-see-boote" sent the British cruiser *Pathfinder* to the bottom. A few days afterward a British submarine squared the account by similarly torpedoing the German *Hela*. Then came the most dramatic episode of all: three substantial, though perhaps "obsolete," English cruisers sank, victims of another of these German sharpshooters of the sea.

This type of sea warfare is practically useless to any power that "rules the waters." Since the days of Trafalgar England has had a navy at least twice as powerful as that of any other country. In consequence she has lorded it over the ocean. This control is not unenlightened selfishness; it is absolutely a matter of life and death. Without it England sinks into the position of a second or third rate power; she becomes, as Disraeli said, merely "a Belgium at sea." Presumably the English fleet at present, being twice as strong as the German, could defeat the Kaiser's forces; a new method of warfare, therefore, such as the submarine, helps England very little. Conversely the submarine, therefore, helps chiefly Germany; and Germany has specialized in this branch of her service. Assuming that the submarine were to become supreme in naval warfare let us follow out the idea to its inevitable conclusions. The German navy, powerful in submarines and skilful in handling them, slowly destroys the British battle line. The British submarines, equally powerful and equally skilful, retort and destroy the German ships. When the operations are finished, both the British and the German navy are at the bottom of the sea. Superficially this looks like a draw; in reality, Germany has scored a tremendous naval victory—one as great, in its influence, as Trafalgar's. For the net result is this: Germany has really lost nothing except an overpowered navy. England has lost the command of the sea, the one thing absolutely essential to her economic life and her existence as a great power.

The British navy went into the war with a submarine flotilla of 76 ships, with 20 building; Germany has 27, with 12 building. In submarines, as in everything else, the Triple Entente enormously outdistances the Dual Alliance. The figures usually quoted give England, France, and Russia 171 submarines in service and 61 building, a total of 232, whereas Germany and Austria have only 37 afloat and 16 in the dockyards, a total of 53. In other words, the allied Powers have nearly five times as many as their Germanic enemies. England's construction of submarines on a large scale evinces a strange flaw of logic. The submarine, if successful, gives nobody the control of the sea; it simply takes away such control from any nation that possesses it. England's policy, therefore, in meeting this situation by building submarine boats, is a negative policy. In the minds of most critics, she should have expended her energies and moneys on an antidote to the submarine. Her navy needed no submarines; what it did need was some contrivance that would destroy the enemy's submarines. This England does not have. The torpedo net, protecting the bottom as well as the sides, is one. But this is useless except for vessels that are standing still; it paralyzes any ship in motion. Another is to armor plate the bottom of ships. That considerably reduces the speed; and it is also a question how successful it would be.

The main defence against the submarine arises from its own limitations. These limitations are three in number: its limited radius of action, its comparatively slow speed, and its blindness. The first is not so serious a handicap now as it was a few years ago; there are plenty of submarines which can now make a voyage of 2,500 miles. The speed question, however, is not yet solved. There are contradictory reports as to their speed; this probably averages, however, about eight knots under water and twelve above. England's great battle cruisers, a comparatively new type of vessel, have frequently a speed of twenty-seven and twenty-eight knots. Provided that a surface vessel sees the submarine, therefore, its defense against it is clear enough; it is to run away.

Again, except under particularly favorable circumstances, the submarine is blind. In a choppy sea, the periscope is not much use. It gets covered with spray, and so reflects nothing except a mist. In perfectly smooth water, it shows the presence of the submarine, as it leaves a triangular wake. It is, therefore, likely to be hit. When it sinks and shoots its torpedo, it aims more or less by guesswork. Only occasionally does the bolt reach its mark. The recent accident to the British ships, however, shows that, despite these limitations, the submarine can do fearful damage. To what an extent it furnishes an offset to a huge battlefleet, the next few months should make plain.



THE WAR IN THE AIR

A BRITISH ARMORED BIPLANE

HOW THE AEROPLANE SCOUTS DIRECT ARTILLERY FIRE, AND HOW THEY FIGHT—DUELS IN THE AIR—AEROPLANES VS. ZEPPELINS

BY

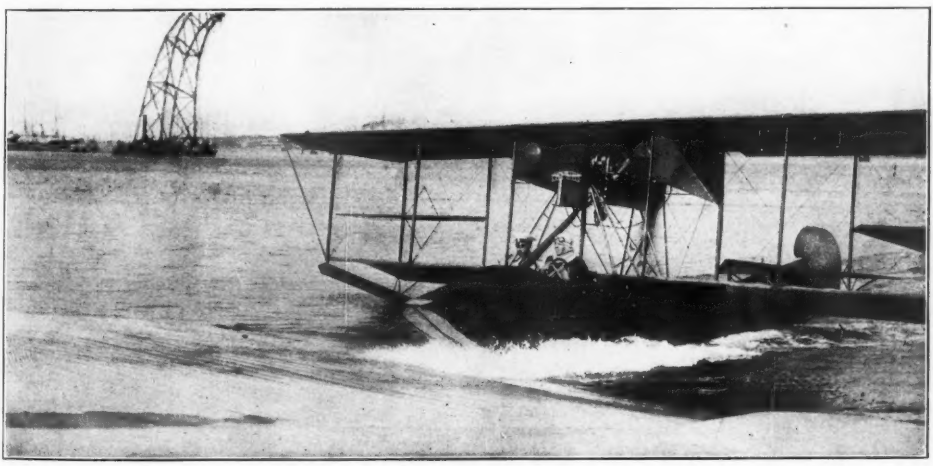
HENRY WOODHOUSE

EDITOR OF "FLYING"

"VICTORY," said Wellington, "belongs to the commander who makes the best guess as to what is happening on the other side of the hill."

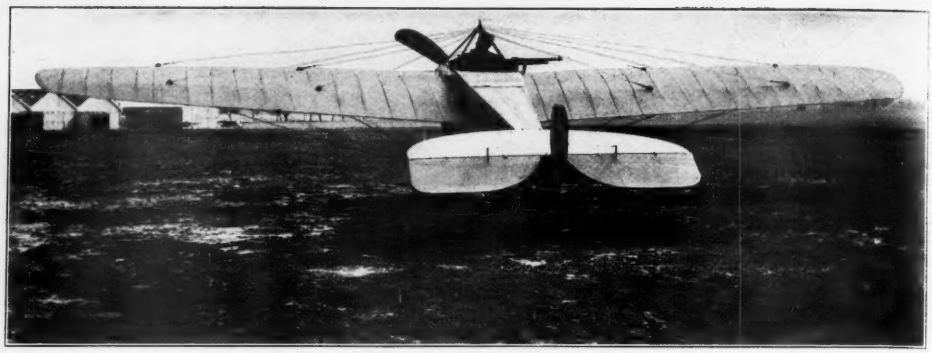
The aeroplane changes the guess to a certainty. It tells a general what his enemy is doing not only behind the first hill but behind any number of hills. It gives information that would bring almost certain victory—if the other general were without similar information. The airscout is an absolute essential in modern warfare. The complete superiority in the air branch of the service would be worth many thousands of men to a modern army, for it would enable the commander to know the enemy's movements and therefore to make the most efficient use of his own men—and waste none where they were not needed.

The results of two months of war show that the aircraft, principally the aeroplanes, have given results beyond even the most enthusiastic expectation. Though the reports of spectacular happenings, such as dropping of bombs, occasional encounters of aeroplanes in the air, and aircraft ramming each other show striking points of value, the most valuable accomplishment has been, as the eyes of the armies and



A RUSSIAN SEAPLANE

THOUGH RUSSIA WAS SUPPOSED TO BE BACKWARD IN AERONAUTICS, IT HAD BEEN BUYING AEROPLANES IN LOTS OF 100 AND WHEN THE WAR BEGAN PROBABLY HAD 2,000 MACHINES AVAILABLE FOR MILITARY USE



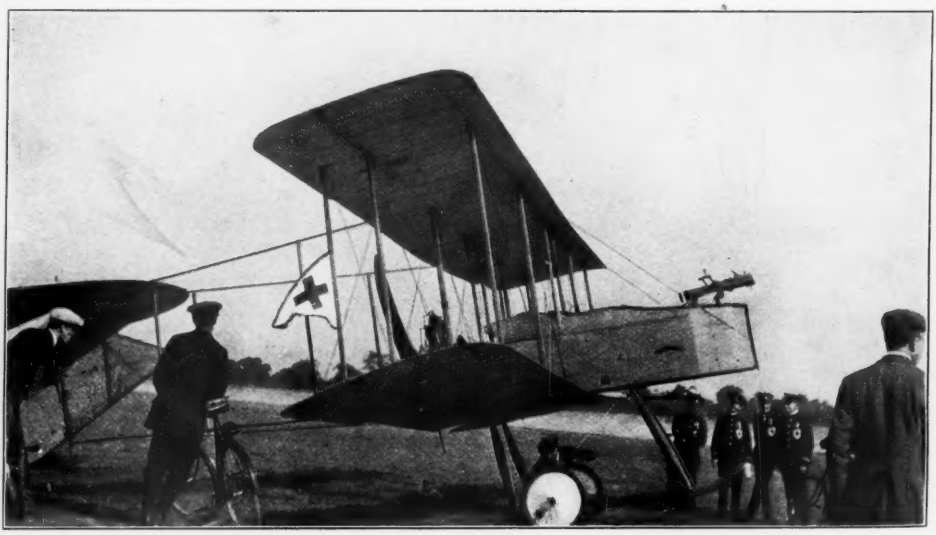
AN AËRIAL DESTROYER

A FRENCH MONOPLANE OF NIEUPORT DESIGN, ARMORED AND CARRYING A RAPID-FIRE GUN, AND CAPABLE OF MAKING 100 MILES AN HOUR

navies, watching the movements of the enemy, thereby removing the element of surprise.

The war was only a few days old when the Belgian airscouts scored the first success, the results of which have influenced the entire campaign. There is evidence that Germany in her underestimation of the tenacity of Belgium did not make good use of her air scouts. It relied entirely on the overwhelming strength of her formidable army and did not consider it necessary to employ air scouts to find the vulnerable spots and offset the advantage gained by Belgium through its very judicial employment of the able Belgian air scouts. The Germans started in with a crushing preponderance of men, but played the game in accordance with plans made many years ago, with little consideration to the immediate moves of the enemy, while the Belgians with few men, but employing a score of efficient air scouts, moved as circumstances dictated. The result was a comparatively large loss of men and an inestimable loss of time on the part of the Germans.

Subsequently, however, the German air scouts were employed very extensively. Each day during the war has brought reports of exploits of German aviators. They have been reported as far as one hundred miles from their nearest base, have dropped bombs and manifestos on Paris and several other cities—rather venturesome undertakings considering that there were scores of French aeroplanes about that were reputed to have a speed of 120 miles an hour, twice the speed of the German machines.



A VICKER ARMORED AEROPLANE, USED BY THE BRITISH ARMY

IT CARRIES A VICKER MACHINE GUN FOR USE AGAINST OTHER AIRCRAFT. THE FLAG WITH THE RED CROSS ON IT WAS USED TO IDENTIFY THE MACHINE DURING EXPERIMENTAL FLIGHTS, AS THE BRITISH AUTHORITIES HAD FORBIDDEN ALL FLYING EXCEPT BY ORDER OF THE WAR OFFICE

French aviators at the front have paid compliments to those hardy German aviators who circle unceasingly over the troops throughout engagements, continually watching the movements of the Allies.

At the beginning of the war the Royal British Flying Corps—the thirty-six aeroplanes, fully equipped, carrying fuel for from four to six hours—crossed the English Channel altogether without the slightest mishap, and reached their objective point at a mile a minute speed! The British Press Bureau has given out the following statement, about its work since:

"One of the features of the campaign on our side has been the success obtained by the Royal Flying Corps. In regard to the collection of information it is impossible either to award too much praise to our aviators for the way they have carried out their duties or to overestimate the value of the intelligence collected, more especially during the recent advance.

"That the services of our flying corps, which has really been on trial, are fully appreciated by our allies is shown by the following message from General Joseph Joffre, the commander-in-chief of the French armies, received on September 9th by Field Marshal Lord Kitchener:

"'Please express most particularly to Marshal French my thanks for the services rendered on every day by the English Flying Corps. The precision, exactitude, and regularity of the news brought in by its members are evidence of their perfect organization and also of the perfect training of the pilots and the observers.'

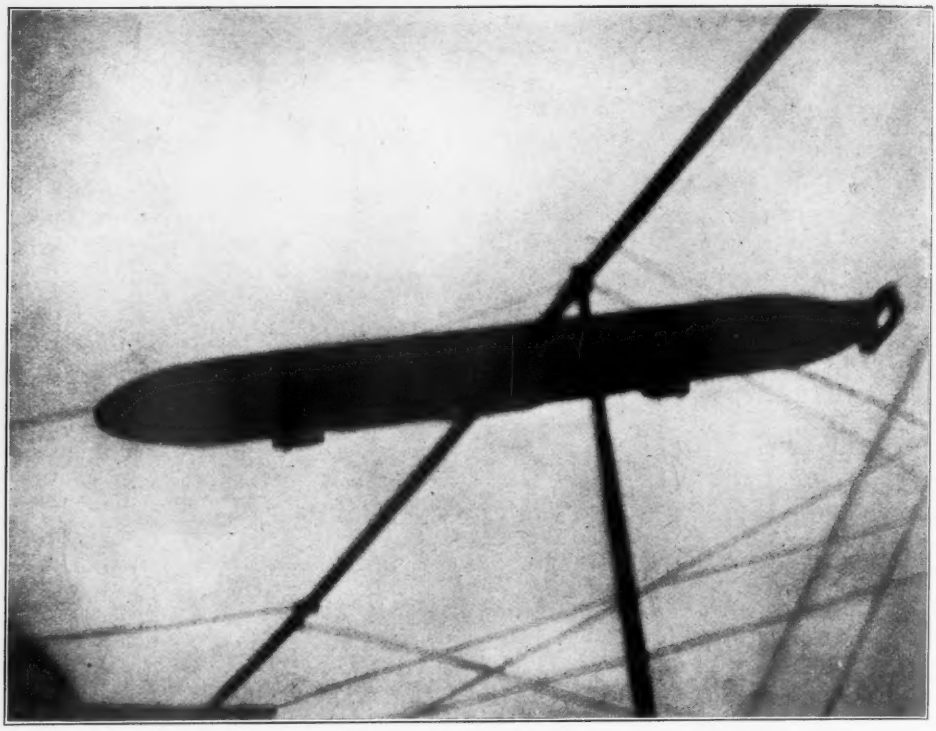
"To give a rough idea of the amount of work carried out it is sufficient to mention that during a period of twenty days up to September 10th a daily average of more than nine reconnaissance flights of more than one hundred miles each has been maintained.

"The constant object of our aviators has been to effect an accurate location of the enemy's forces and, incidentally, since the operations cover so large an area, of our own units.

"The tactics that have been adopted for dealing with hostile air craft are to attack them instantly with one or more British machines. This has been so far successful that in five cases German pilots or observers have been shot while in the air and their machines brought to ground. As a consequence the British flying corps has succeeded in establishing an individual ascendency which is as serviceable to us as it is damaging to the enemy.

ARMED TO ATTACK ZEPPELIN WAR BALLOONS

AN ARMORED DEPERDUSSIN MONOPLANE THAT IS CAPABLE OF TRAVELING 120 MILES AN HOUR



A ZEPPELIN DIRIGIBLE, PHOTOGRAPHED FROM AN AEROPLANE

THE PICTURE GIVES A GOOD IDEA OF THE ENORMOUS TARGET A ZEPPELIN OFFERS TO AN ENEMY'S COMPARATIVELY MICROSCOPIC AEROPLANE

"How far it is due to this cause it is not possible at present to ascertain definitely, but the fact remains that the enemy have become much less enterprising in their flights. Something in the direction of the mastery of the air already has been gained in pursuance of the principle that the main object of military aviators is the collection of information.

"Bomb dropping has not been indulged in to any great extent. On one occasion a petrol bomb was successfully exploded in a German bivouac at night, while from a diary found on a dead German cavalry soldier it has been discovered that a high explosive bomb, thrown at a cavalry column from one of our aeroplanes, struck an ammunition wagon, resulting in an explosion which killed fifteen of the enemy."

Air scouts may be thankful that it so happens that the altitude required to keep out of reach of rifle fire is not too high to allow clear observation of things below. The British War Office's instruction to air scouts is not to fly lower than 3,000 feet when exposed to rifle fire, and to add another thousand feet when artillery is underneath. The French agree on these figures and pilots are officially instructed to regard them. Under misty conditions it is left to the pilot to drop lower if objects cannot be distinctly seen. At the altitude of 3,000 feet a trained observer can distinguish moving bodies and characteristics of arms, which is all important, since the presence of artillery at a certain point means quite a different state of affairs than the presence of cavalry or infantry, and requires different action. Only a part of the observers acting in this present war had had experience, and the results would have been mournful for airscouts had it not been that there was likewise a lack of experience in shoot ing against aircraft. Reports in the first month told that the airscouts of both sides, probably in efforts to make up for their lack of experience, flew very low, mostly at from 1,500 to 2,000 feet. The fact that only a score out of 5,000, were brought down shows that the shooters were not in a position to take advantage of their inexperience.

Perhaps what the airscout sees from the air is best explained by information of what he may not see under certain circumstances. The following notes issued by the British War Office to guide officers in charge of troops whose movements are being observed from aircraft give a good idea of the possibilities both ways. The notes are as follows:

(1) The accurate observation of bodies of troops largely depends on two circumstances: (a) The background, that is, the color of the

FRENCH AEROPLANES PATROLLING THE SKY ABOVE PARIS

THESE SMALL CRAFT HAVE BEEN SUCCESSFUL IN PREVENTING ATTACKS FROM ZEPPELINS, AS WELL AS SERVING AS SCOUTS UPON THE ENEMY'S MOVEMENTS

ground on which the troops may be at the moment; and (b) Movement, i. e., troops on the move are far more easily seen than when they remain absolutely still.

(2) A column of troops moving along a white or light-colored road can be easily seen from almost any height, whilst an extended line of infantry scattered on the grass amongst small bushes will seldom be detected if they remain still. Troops should on no account look up at aircraft, for nothing is more conspicuous than men's faces.

(3) When troops are marching along a broad road it is advisable that strict march discipline be maintained, the troops being kept well to one side of the road, so that the remaining side, if kept absolutely clear, will look like the whole of the road, and will probably not attract the observers' attention.

(4) Troops in column of route on a narrow road may escape observation if they at once take cover on either side of the road, and remain absolutely still, close under the hedges.

(5) Woods, belts of trees, high hedgerows, and villages all offer complete shelter from observation if taken advantage of when the aircraft is still at a distance.

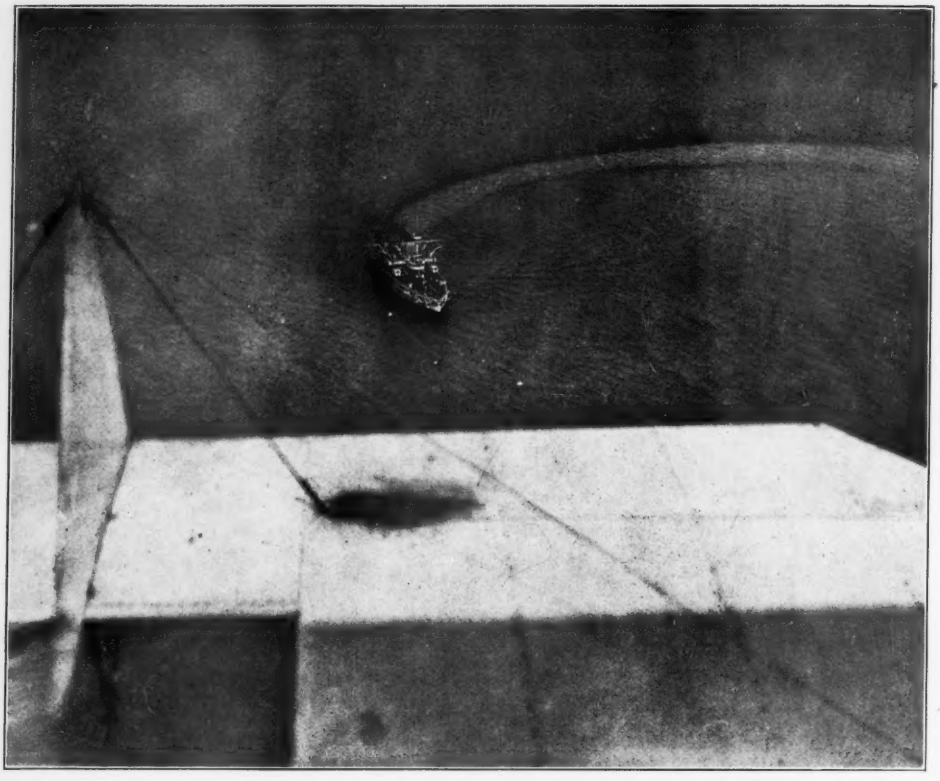
(6) When moving over country in extended order or in small columns, troops should take cover under the nearest trees, hedgerows, or patches of gorse and bushes, lying still, close under the edge of such vegetation, until the aeroplane has passed on.

(7) Formed bodies of infantry must be got under trees or into woods if they are to escape observation, for in the open they are certain to be seen.

(8) Artillery will probably be unable to conceal either their guns or their horses, except in very favorable country where trees are numerous and the view much restricted. Guns in the open will no doubt be easily seen, and the only hope of concealment is to occupy a position close up to a hedgerow and fire through it.

(9) When troops are in camp, or in bivouac, every endeavor should be made to alter the usual formations with a view to deceiving the observer, and causing him to mistake one unit for another, e. g., a battery for a Field Company, R. E. Guns can be covered with tarpaulin or hay. Where feasible, cooking should be done near villages, so that the smoke does not attract attention.

(10) The question will often arise as to how long the presence of a hostile aeroplane is to be permitted to interfere with or paralyze the manœuvre which may be in progress. Time



THE AEROPLANE'S VALUE IN NAVAL WARFARE

A RUSSIAN BATTLESHIP PHOTOGRAPHED FROM THE SKY, THE TAIL OF THE AEROPLANE SHOWING AT THE LEFT OF THE PICTURE

may be a more important element than discovery, and brigade commanders must judge whether it is more advisable to delay the movement by taking cover and remaining hidden, or to continue the manœuvre.

As General Bonneau, of the French Army, expressed it after using aeroplanes in the manœuvres. "With the aeroplane everything is seen by the eye; nothing is left to guess." With the aeroplanes there are no military "curtains," nor any covers that can hide from the chief of the army the depth, width, and composition of opposing forces, the position of their reservations, their evolutions in front and rear. The general who knows how to use aviators will always be posted from instant to instant of the movements of the enemy.

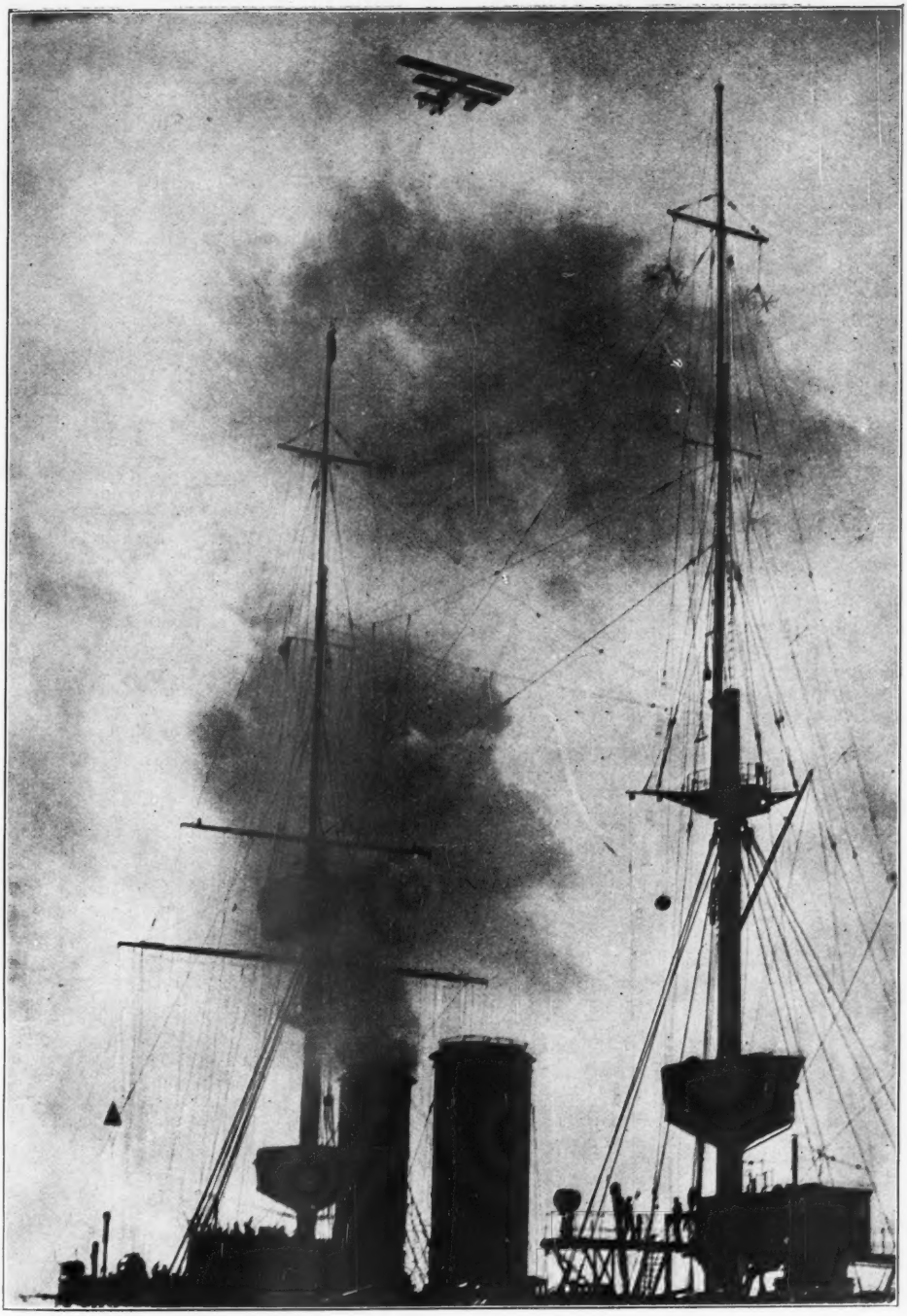
But although the greatest influence the aeroplane has in war comes from its almost instantaneous scouting abilities, enabling generals to improve their strategy, it also is extremely useful in aiding the tactics employed on the battlefield. It is of particular service to modern artillery which usually fires from a concealed [illegible]n at an enemy which the gunners cannot [illegible] is often difficult even for the officers of to gain a position from which to observe accurately the results of their battery's fire. But nothing obstructs the observation of an aeroplane hovering over the battle.

General Brun, the head of the French Army in 1910, was responsible for the first experiments with aeroplanes to direct this fire.

Colonel Estienne, who supervised special trials, wrote:

"From the time guns were invented no device or technical invention has been developed which increases the efficiency of artillery as much as the aeroplane does."

One aeroplane is allowed to each battery. When the battery is ready for action the aviator connected with it is in the air and has with him small maps or topographical charts on which the object to be hit is marked, if its location is known. If it is not known he finds its location and indicates it on the map which he drops down in a special tube. When wireless is used he reports the location that way. Then he is ready to watch the firing. At a given signal the aviator flies over the battery which fires two shots, one short and one long. The aviator notes the results, marks the location of the



THE MISTRESS OF THE AIR ABOVE THE SEAS

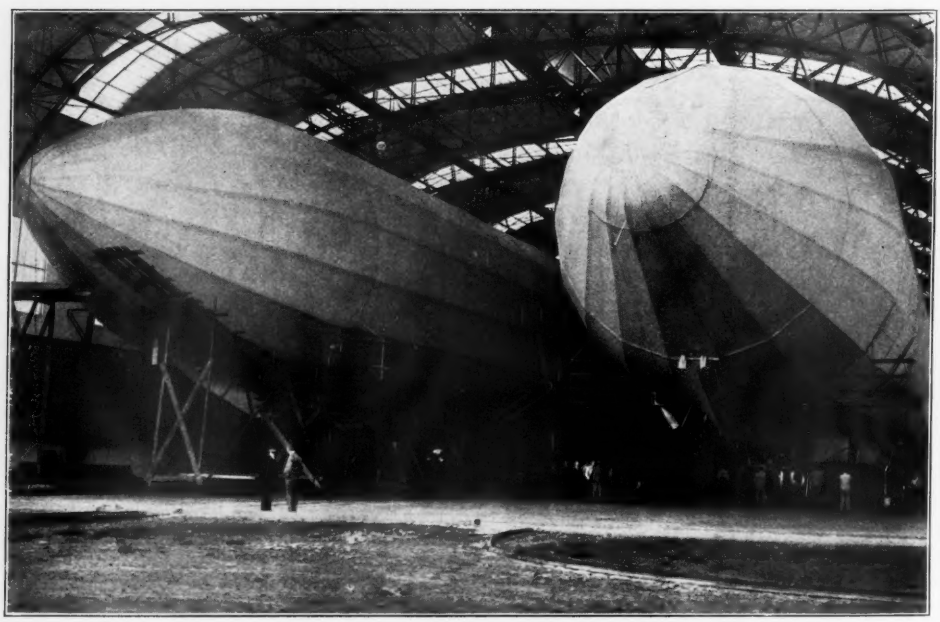
UNDER WINSTON CHURCHILL'S ADMINISTRATION OF THE ADMIRALTY, THE BRITISH HAVE BUILT UP THE LARGEST AND MOST EFFECTIVE BODY OF SEA-PLANES AND "MOTHER SHIPS" OF ALL THE NATIONS

A NON-RIGID FRENCH DIRIGIBLE STARTING ON A NIGHT CRUISE

THIS DIRIGIBLE CAN CARRY 16 PEOPLE AND CAN CRUISE AT A SPEED OF 42 MILES AN HOUR FOR 20 HOURS WITHOUT STOPPING. SEVEN DIRIGIBLES OF THIS TYPE, BUT LARGER AND CAPABLE OF A SPEED OF 60 MILES AN HOUR, WERE DELIVERED TO THE FRENCH ARMY JUST BEFORE THE WAR. ALL THESE DIRIGIBLES HAVE ARMORED CARRIAGES EQUIPPED FOR BOMB DROPPING AND GUNS FOR DEFENSE AGAINST AEROPLANE ATTACKS

hits on the chart, or reports by wireless. The officer directing the fire thus gets the exact results of the firing and rectifies the range accordingly. The night work of artillery has been directed entirely by aeroplanes, which on discovering the location of the enemy fly over it and drop flaming torches or colored fire bombs. The following report from Soisson, dated September 17th, gives an idea of what the effect has been:

"Last night an air scout located a train filled with retreating German soldiers, and the pilot dropped a torch to indicate the range. Our artillery blew the train to atoms in a few minutes."



TWO SMALL MILITARY ZEPPELINS

THE ZEPPELIN FACTORY AT FRIEDRICHSHAFEN AND A NEW FACTORY AT POTSDAM ARE NOW MAKING SIX DIRIGIBLES A MONTH FOR THE USE OF THE GERMAN ARMY AND NAVY

Using aeroplanes in connection with artillery, to find the range and "spot" shots, has made the later period of the war, that which followed the check of the Germans by the Belgians, remarkable for its swiftness in taking fortified places. The aeroplanes have supplied infallible eyes to the big siege guns, and have more than doubled the efficiency of gun-firing. To realize the extent of the economy of this we need but consider that an aeroplane costs only as much as a single shot of a fourteen inch gun! All sides, with the possible exception of Austria and Russia, are using aeroplanes with their big guns—insufficiency limits a more extensive employment.

Naval aeronautics has not yet figured in the news from the front. But it must be remembered that to the date of this writing there have been no serious engagements. It is quite possible, as a matter of fact, that the air scouts are responsible for the inactivity.

England at the start of the war had powerful and well organized naval aviation corps. Six naval aviation centres have been established in the last year at Grain Island, Kent, England; Calshot, Hanks, England; Great Yarmouth, England; Felixtowe, England; Fort George, Inverness, N. B., and Dundee, Scotland.

Besides there were two hangar-ships for use as mother-ships, to go with the fleets. The seaplanes, of which there were about two hundred available, are very efficient craft, mostly high-powered, armored, equipped with wireless apparatus and quick-firing guns. None of the other countries has developed this arm as extensively and efficiently as Great Britain. Most of the other countries have confined their development to using water air craft for coast defence; and Germany relied almost entirely on the alleged superiority of her naval dirigibles, the Zeppelins *L*–1, and *L*–2, which met with mishaps; and, subsequently, on the *L*–3 and the *Schütte Lanz*. Only recently it was thought advisable to give inducement for the development of seaplanes and flying boats. The British naval air scouts with their swift and armed seaplanes also seem to have shown capability to fight the Zeppelins, and the German authorities very wisely have not risked them. All the dreadnaughts are, besides, protected from dirigible attack by guns, and some by armor.

The flagship of the first fleet, the *Iron Duke*, is protected by both armor and guns against overhead attack.

Since the beginning of the war there has been expectation of night attacks by Zeppelins on Paris and London and the Allies' sea-fleets, the notion being that something of a general destruction would result. If such thing were possible—if half a dozen airships costing altogether less than two million dollars, manned by one hundred and fifty men, costing comparatively nothing to operate, could bring such results, then surely it would be rank waste to have dreadnaughts which cost from twelve to fifteen million dollars each and require thousands of men and thousands of dollars a day to operate. It would be cheaper by far to have transports with aërial escorts.

However, the dirigible has not accomplished what was expected of it. Its potentiality has been restricted by the aeroplane. So long as battleships and cities had nothing but guns or slow aeroplanes to defend themselves with, the dirigible loomed as a terrible menace; but with the present day armored and armed seaplanes and aeroplanes capable of a speed of ninety miles an hour and of staying in the air for hours and of flying at night as well as by day, the dirigible's safety is endangered unless it is accompanied by aeroplanes to defend it. The two hours required to take it out of the hangar and start it form a handicap in scouting work, and the aeroplane is preferred.

A year ago the declaration of war would probably have been followed by an attack on London and the English coast by the dirigibles stationed at Cologne, Heligoland, Kiel, Cuxhaven, Wilhelmshaven, Düsseldorf, and Frankfort. But last year the British authorities took notice of the fact that Germany had faced Great Britain's new strategic frontier with the best of her aërial fleet and organized the powerful army and navy aircraft corps. London is only 300 miles from Cologne and less than one hundred miles more from Düsseldorf, Wilhelmshaven, and Cuxhaven, and though Zeppelins could cover that distance easily it is not likely that they will. Nor is there much likelihood of an attack on Paris by many Zeppelins.

The dirigibles of Metz, Strasburg, and Mannheim could reach Paris, which is between 200 to 250 miles away, in from four to six hours, which is not a long cruise for a Zeppelin. Starting from their hangars at seven o'clock in the evening they would arrive over Paris after midnight; but could hardly be back to the German lines, after delivering the attack, before daylight. On the way they would be exposed to aeroplane attacks and the odds would be against them.

At night a Zeppelin makes a large outline against the sky, whereas an aeroplane cannot be seen approaching. An aeroplane can fly all around a dirigible at dusk, and the defenders of the dirigible would have difficulty to follow its movements. On the other hand the Zeppelins, being close to five hundred feet in length and more than forty-five feet in breadth, make rather vulnerable targets for present-day guns. Taking all in consideration it seems that though raids might be made on large cities and a few non-combatants may be killed, the gain from such raids would hardly be worth the risk. Until fleets of from ten to twenty dirigibles can be sent out to make raids or their speed is increased to seventy-five miles an hour—which, however, may come soon, even before the war is over—the dirigible's activity will be confined. Its present position compared with the aeroplane is very much the position of a large

and slow transport equipped with guns against a fast small cruiser.

The slow aeroplane with a speed of up to sixty miles an hour has not, however, any advantage over the dirigibles of fighting size. The Zeppelins, the *Schütte Lanz*, the latest *Astra-Torres*, *Lebaudy*, *Clément-Bayard*, *Parseval*, and other types, have armored carriages and carry guns. The carriages are so placed that expert gunners can shoot in every direction except straight up and this direction is taken care of by gunners on top of the gas bag, who reach this position by a ladder that goes through an opening from bottom to top of the gas bag. What a dirigible can do to a slow aeroplane can be judged from the results of experiments at shooting at moving targets conducted in the last eighteen months. In an experiment with the army Zeppelin *Z*–5, just before the war the following manœuvres took place:

A box 30 feet long, 15 high, and 18 feet wide was suspended from a balloon at a height of 1,000 metres (3,280 feet).

The wind was strong and moved the box, so the difficulty of hitting it was little less than hitting an aeroplane. The dirigible circled around the balloon, and fired at 4,000 feet distance, first 50 cartridges with a machine gun, then with a cannon. The balloon was then pulled down and they found that almost all the bullets had struck. The balloon was sent back to an altitude of 1,200 feet, the dirigible went up to a height of 2,200 feet and fired 15 cannon shots from a distance of 6,000 feet. Two thirds of the shots were effective, three striking the black spots which represented the pilot and motor. The manœuvre was repeated at a distance of 7,000 feet with the same results.

Outside of the exploits of the few Zeppelins which dropped bombs on Antwerp and several other cities, terrorizing inhabitants and killing a score of harmless people, little has been heard of dirigibles. But they have been active and have many exploits, long distance reconnaissances which could not yet be performed by aeroplanes, to their credit. The German Zeppelins, the *Schütte Lanz* and the *Parsevals*, the French *Fleurus*, *Adjudant Reau*, and the *Spiess*, and the British *Astra* have made long reconnaissances, some extending through an entire night, during which they maintained constant communication with headquarters by wireless. As winter approaches and nights are longer and the movements of troops slower the dirigibles will be most active, as active as the aeroplanes allow them to be.

The following estimates made from reliable official but unpublished reports and knowledge of conditions and aeronautical plans of the nations give the aërial strength of the belligerent nations at the beginning of the war. It must be added that for two years Germany and Russia have kept their progress in aeronautics secret; last year England and France limited the nature of developments which could be made public. Only the few people closely connected with the aeronautical circles of different countries know of the developments that have taken place. The only official figures outsiders can get are the official reports published at the end of the year 1912. Hence to the outside world France has approximately 500 aeroplanes, and England barely more than 100. These figures are incorrect. They represent only a fraction of the actual strength, as the writer has ascertained. For example, in the debates over the organization of the aeronautical branch of the French army at the Chamber of Deputies it was shown that the French army bought 300 aeroplanes in 1912 and 336 in 1913, and 208 were bought with the money collected by public subscription. This gives 844 machines to the French army without counting the large acquisitions of 1914.

The strength of the British navy and army can be gauged by the following statements made by First Lord of the Admiralty Winston Churchill and War Secretary Colonel Seely to the House of Commons last February. Replying to questions in the House as to the number of airships owned or being built for the Government Mr. Churchill stated:

"There are fifteen dirigible airships built, building, or ordered at the present time for the naval wing."

From similarly reliable official but unpublished reports and knowledge of conditions and aeronautical plans of the nations, the writer estimated their strength as follows:

France: aeroplanes, 1,200 military, 500 added during the period of mobilization by acquisition of private machines and output of factories. Dirigibles, 12 of close to 400 feet in length; 14 of less than 300 feet in length; 5 privately owned, or 31 altogether.

Germany: aeroplanes, 600 military, 400 added during the period of mobilization by acquisition and output of factories. Dirigibles, 12 Zeppelins of from 350 to 490 feet in length; 23 dirigibles of other types, including those privately owned.

Russia: aeroplanes, 800 military, 150 added during the period of mobilization. Dirigibles, 16 of different types, but mostly under 250 feet in length.

England: 200 navy seaplanes; 300 army aeroplanes; 300 added during the period of mobilization. Dirigibles, 15, mostly new, up-to-date machines acquired in the last twelve months.

Austria: aeroplanes, 350, of which all but 100 were acquired at the beginning of hostilities. Dirigibles, 8, mostly less than 300 feet in length.

Belgium: aeroplanes, 40, and 40 acquired at the beginning of hostilities. Dirigibles, 2, one medium size, and one small.

Servia: aeroplanes, 40, dirigibles, none.

These forces were divided in each country in units composed of between one and six squadrons of eight aeroplanes each and one or two dirigibles and were stationed at aerodromes near military centres.

A WAR OF UNSEEN ARTILLERY

HOW GUNNERS FIRE WITH DEADLY ACCURACY AT ENEMIES WHOM THEY CANNOT SEE—HOW THE FRENCH REVOLUTIONIZED ARTILLERY PRACTICE

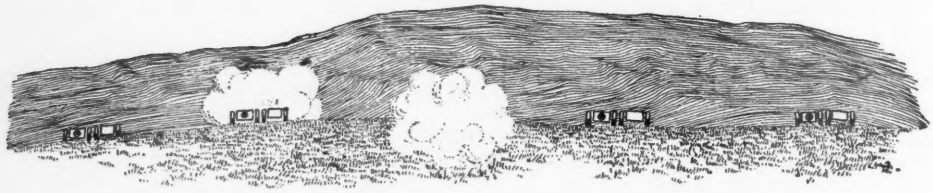
INFANTRY now is much the same as it was twenty years ago. Cavalry is much the same as it used to be. But artillery is different, and this is more of an artillery war than any that has preceded it. When the French artilleryman attempted to stop the Prussian advance forty-four years ago, he placed his gun on a hill, waited until he could see the enemy, aimed at him, and fired. Now he places his gun behind a hill where he can't see the enemy and the enemy can't see him, shoots into the air at an angle and in a direction given him by his officers, and hits the Germans much more often than formerly although the Germans are now much farther away—perhaps two or three miles.

The artillery arm in warfare has radically changed. The guns used in our Civil War were simple tubes of metal loaded generally from the muzzle and mounted rigidly on an axle between two wheels. Every time the gun was fired the carriage ran back a considerable distance and the cannoneers had to push it forward again to the firing point. Hence the fire was necessarily slow. The sighting devices were crude, but as the range was rarely as much as a mile they were sufficiently good, perhaps, for the weapon with which they were used. In the period from 1865 to 1900 guns became gradually more powerful and efficient, but no very radical improvement was made. About 1900 however, the French succeeded in revolutionizing the gun carriage and sights and so the method of using artillery. The gun of to-day, instead of being fixed rigidly to its carriage, is attached to one or more recoil cylinders mounted on the carriage. When the gun is fired the carriage stands fast while the gun alone slides to the rear; the energy of recoil being gradually taken up by the resistance which liquid in the recoil cylinder offers to the movement of a piston, and by the compression of springs or air, which latter then serves to return the gun to its firing position after the recoil has been checked. As the carriage has not moved, the gun—almost instantly returned by the springs—is still directed on the target, and can be fired with great rapidity—20 aimed shots a minute if necessary by guns of 3-inch calibre.

The sighting device is so arranged that the gunner can aim either directly at a given point, or at any angle away from that point given by the captain. This is of great importance for, in general, the captain designates as an aiming point some prominent object which all the gunners can see, and gives the gunners the angle which they must set off on their sights so that, when the line of sight is directed on the aiming point, the gun will be directed at the enemy. This may sound rather complex, but it is not really so, though diligent practice and training are required to attain the necessary skill and quickness. The angles may be measured with sufficient accuracy by means of a graduated ruler held by aid of a string at a fixed distance from the eye.

The introduction in the last few years of long range, accurate, quick-firing guns has greatly affected the manner of serving artillery. In the early part of the Manchurian War the Russian artillery, taking positions in the open in the old way, suffered great losses from the fire of concealed Japanese artillery. The results of this war, confirmed, it seems, by those of the recent Balkan War, have been to cause military men generally to regard the concealed or masked position as the normal one for artillery. This means that the guns are hidden by a crest, or by trees, or standing crops while the captain, placed so that he can overlook the field of action, gives the data for aiming the guns so that their fire will reach the desired target. Hence the cannoneers have only the mechanical duties of setting fuses, loading, aiming, and firing the gun according to the captain's commands; and, with the equipment now provided, it is possible for the captain to direct the fire of his guns quickly and accurately on almost any target in range and vision. He can shift the fire from right to left and, by minor changes in the angle as used by the different guns, he can cause their fire to be converged or distributed as he sees fit. A skilful captain with a well-trained battery has the fire almost as readily under his control as has a fireman of the stream of water from his hose. The communication between a captain and his gunners is the weak link; for the captain may have to separate himself considerably from the guns in order to see the target, and then has to rely on telephones, signals, or a chain of orderlies to transmit his commands. Of course it is not to be presumed that the guns should always be placed under cover. If the conditions require it they may be placed in the open.

Whether concealed or in the open, whether using indirect or direct laying, the procedure of adjusting the fire on a target is much the same. The captain causes a salvo of two or four shots to be fired, using the range obtained from the range-finder or his own estimation: let us say, 3,000 yards. When the guns are fired he sees two or four burst somewhere near the target. He observes, let us suppose, that



FINDING THE ENEMY'S GUNS WITH SHRAPNEL — FRONT VIEW

SHOWING ONE SHELL BURSTING IN FRONT OF THE BATTERY AND ONE BEHIND, THEREBY FIXING THE POSITION

they are to the right of the target and short of it. He orders another salvo to be fired that is directed the necessary amount to the left and with a range or elevation greater by 400 yards than the range last used. Say that this is good for line but over the target. He then fires a third salvo at the mean of the preceding two or, in other words, at 3,200 yards, and if this should be observed as striking beyond the target, he would then know that he had his target "bracketed" between 3,000 and 3,200 yards; and if the target consisted of troops in the open, and hence liable to move, he would probably proceed at once to search this 200-yard area by firing salvos at 3,000, 3,100, and 3,200 yards until he could make sure which was the most effective range.

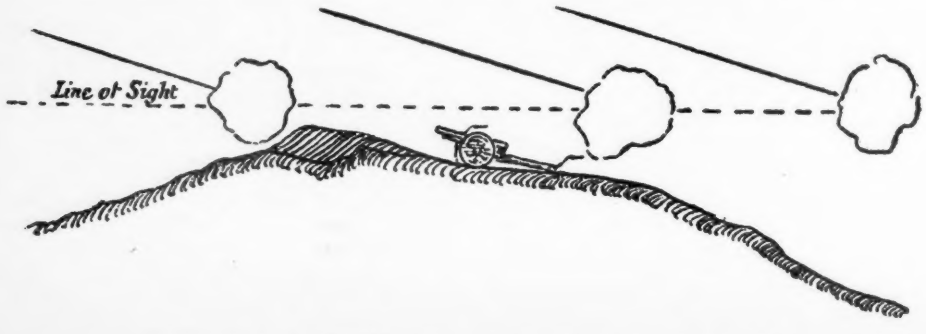
The captain has other things to do, namely, causing his time fuses to be adjusted so that the shrapnel will burst at the proper height, and varying the direction of his different guns so that their fire will properly cover the part of the hostile line he has to attack. But the description above gives an idea of the processes involved. In the performance of his duties the captain may have assistants posted in favorable positions to observe and signal how near the shots are falling to the target; and observers in aeroplanes or dirigibles may likewise be used to assist him in adjusting the fire on targets so well concealed that he cannot see them at all.

Field artillery includes light artillery, horse artillery, mountain or pack artillery, and heavy or siege artillery.

Light artillery constitutes by far the greater proportion of the artillery accompanying field armies. Its principal weapon is a gun of about 3-inch calibre, firing a projectile weighing about 15 pounds. The gun and the caisson (carrying ammunition) are each drawn by six horses, and these vehicles are presumed to be sufficiently mobile to accompany the infantry in almost any ordinary kind of country. The 3-inch gun is the one principally employed for the reason that it is the best compromise between the conflicting considerations of power and mobility. Moreover, it is able to meet most of the requirements of the ordinary battlefield. When special services are required, such as breaching heavy fortifications or reaching an enemy at very long ranges, the heavy guns have to be dragged up.

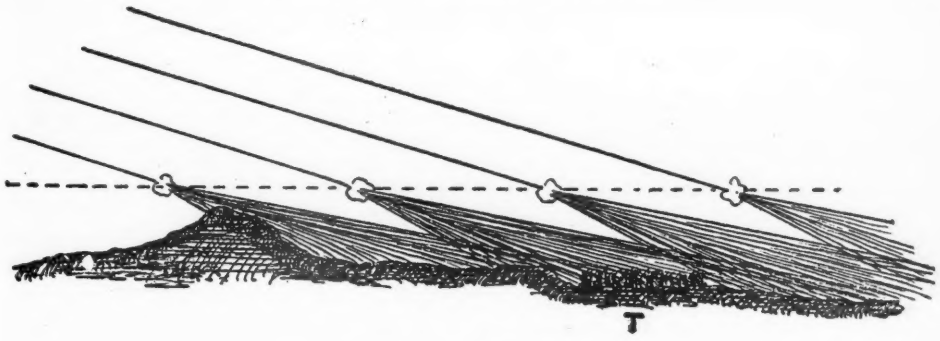
Horse artillery is intended especially for service with cavalry. The equipment is very similar to that of light artillery, but means are taken to reduce weight so that six horses can draw the two vehicles and keep up with cavalry in long, fast marches. In light artillery the men who serve the guns, i. e., the cannoneers, ride in the carriages, and thus add to the weight to be drawn by the horses; but in horse artillery every man has a horse to ride.

Mountain or pack artillery is devised especially for service in difficult country: in the mountains or in the jungles of the tropics, where the trails are not adapted to the use of wheeled vehicles. Most of the nations of Europe have provided themselves with a small proportion of mountain guns for such services. The guns and all the equipment are packed on the backs of mules, each mule carrying a load of between



FINDING THE ENEMY'S GUNS WITH SHRAPNEL — SIDE VIEW

SHELLS TIMED TO BURST AT THREE DIFFERENT PLACES

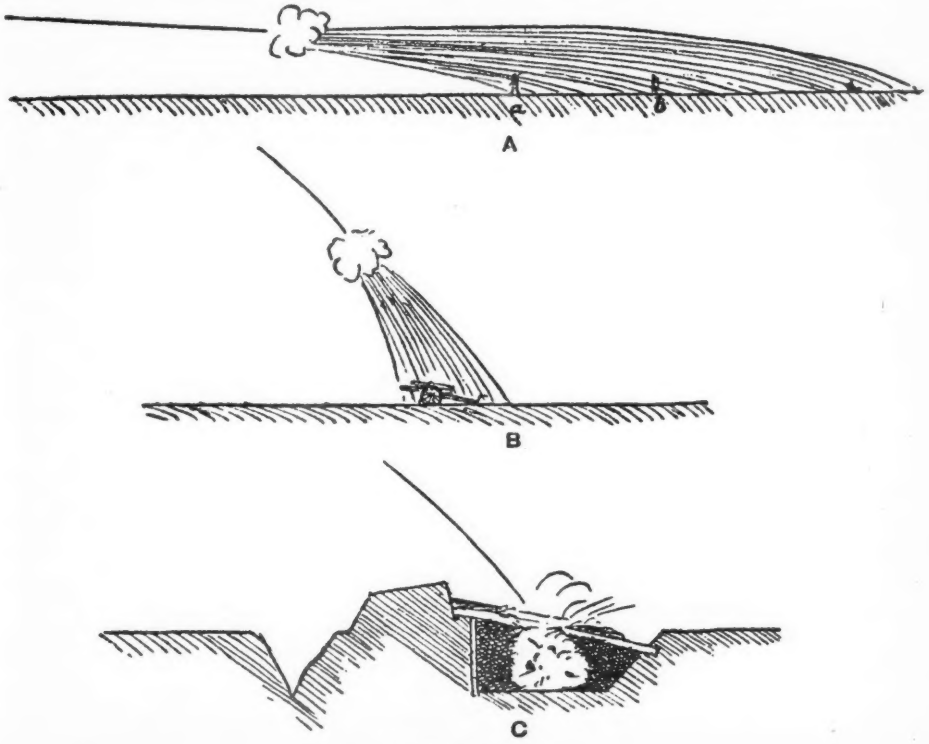


COVERING THE GROUND

HOW SHRAPNEL MAY BE FIRED SIMULTANEOUSLY TO COVER TERRITORY WHERE TROOPS ARE CONCEALED

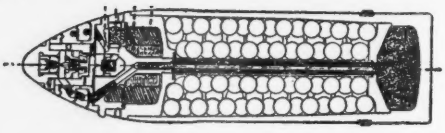
250 and 300 pounds. For travel, the gun and its carriage are dismounted and the parts are loaded on five different mules. With skilled cannoneers the loading and unloading can be effected with great speed. Due to the ease with which this type of artillery can cross any kind of country and take advantage of cover it is especially adapted to the close support of infantry; but, due to the limitation on weights, it is necessarily a less powerful weapon than that used by the light and horse artillery. The weight of the projectile is approximately the same, but it is fired at a much lower velocity.

Heavy or siege artillery are the larger calibre guns, howitzers, and mortars used to destroy material objects such as fortifications, and



BURSTING SHRAPNEL

"A" SHRAPNEL FROM A HIGH POWER GUN PROPERLY TIMED ATTACKING INFANTRY IN THE OPEN. "B" SHRAPNEL FIRED FROM A HOWITZER AGAINST ARTILLERY. "C" SHRAPNEL BURSTING ON IMPACT AND REACHING TROOPS PROTECTED BY OVERHEAD COVER



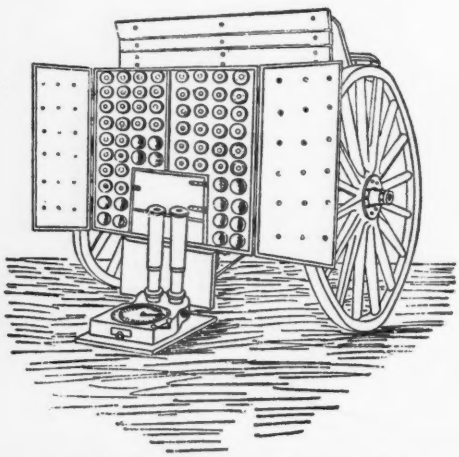
HIGH EXPLOSIVE SHRAPNEL

IF THE TIME FUSE IS SET THE PROJECTILE BURSTS IN AIR, THE BASE CHARGE DRIVING OUT THE BULLETS WHICH SCATTER AND GIVE THE SHRAPNEL EFFECT; OTHERWISE THE PROJECTILE BURSTS ON IMPACT

to supplement the fire of light guns in the attack of troops at specially long ranges or well protected in intrenchments. A variety of calibres are used by different nations for these purposes, ranging from guns and howitzers of from 4- to 6-inch calibre firing projectiles from 40 to 120 pounds in weight, up to howitzers and mortars of 11-inch calibre, firing projectiles weighing as much as 800 pounds. The lighter calibres are hauled by teams of eight horses as a rule; the heavier calibres are transported by rail as far as possible, and are then drawn by some form of traction engine or by horses.

In action a field gun and its caisson carrying ammunition are placed side by side, wheels almost touching. Both vehicles are provided with shields which serve to give almost complete protection from infantry fire. On seats attached to the piece two cannoneers keep it trained for direction and for range as prescribed in the commands of the captain, while other cannoneers, kneeling behind the caisson, set fuses and pass the cartridges to a man who feeds them into the gun as fast as it is fired.

If the guns are skilfully posted in the beginning their great range and the ease with which fire may be shifted from place to place permits



A CAISSON OR AMMUNITION WAGON

WHICH IS SET BY THE SIDE OF THE GUN IN ACTION. THE DEVICE ON THE GROUND IS A MECHANICAL FUSE SETTER BY WHICH THE POINT OF THE EXPLOSION OF THE SHELL IN THE AIR CAN BE REGULATED

their fire being brought to bear on many parts of the battlefield without frequent changes of position; and with accurate means of communication established the higher artillery commanders can cause the fire of groups of artillery to be converged on one point or distributed as necessity dictates.

The 3-inch gun, the one which constitutes the bulk of the equipment, is very effective at ranges up to two miles, while up to three and a half miles it may still be expected to accomplish very considerable results. The heavy guns and howitzers of medium calibre, say about 6-inch, are very effective up to three and one half miles and may be used to advantage up to five miles. The large guns used in siege operations, say of about 11-inch calibre, are effective up to five miles, but even at this range difficulties of observation will often make accurate adjustment difficult.

GUNS OF VARIOUS EUROPEAN NATIONS

There are no essential differences in the *light* artillery equipment used by the principal European nations at the present. The same could not have been said 12 years ago, however, for the French had then just succeeded in making a notable advance in artillery equipment. They had devised the gun recoiling on its carriage described above and had learned to use it from concealed positions, employing indirect fire. Other artilleries were still provided with the old rigid type gun carriages and they still expected to use their guns habitually more or less in the open, with direct fire. It seems unquestionable that the French would have had a great advantage at that time. But now all nations have followed the French lead and though some types may be better than others, no very great advantage can be claimed on the score of light artillery equipment. It is skilful handling which must determine on which side the advantage lies.

In the improvement of heavy or siege artillery equipment progress has been much less uniform. As the efficiency of the light field gun has increased the tendency has naturally been to commence actions at longer ranges and to use cover to a greater and greater extent. The desire for larger and heavier calibres has thus been on the increase. The Japanese brought mortars of the larger size (11-inch) to bear on the defenses of Port Arthur; and possibly as a result of this experience the Russians have provided themselves with a howitzer of this same large calibre, firing a shell weighing about 800 pounds. This mortar is transported in the field on four separate vehicles but is capable of being mounted and dismounted within an hour's time. The Germans have devoted themselves specially to the provision of heavy equipment. Knowing that land forts lay in their path it seemed natural to provide guns adapted to destroying them. The heavy guns principally in use by the Germans are, according to the public prints, a 6-inch howitzer, firing an 88-pound shell, with

a maximum range of about four and one half miles; and an 11-inch howitzer, firing a 750-pound shell, with a maximum range of about six miles. The latter is probably the weapon which the newspapers have so often referred to in connection with the attack on the forts of Liège and Namur; and the former is probably the heavy howitzer frequently referred to in the daily papers as being used by the Germans in the battles on the Marne and the Aisne. Each army corps is understood to have sixteen of these weapons.

The French have for some time been discussing in their military literature the pros and cons of heavy artillery equipment. They have not apparently as yet adopted guns or howitzers of the heaviest calibre. Their only heavy equipment appears to be a 6-inch howitzer firing a 95-pound shell with a maximum range of about four and one half miles. Each French army corps is reported to have twelve of these weapons when on a war footing. The English have with each infantry division four heavy guns firing a 60-pound shell.

ORGANIZATION OF FIELD ARTILLERY

The organization of field artillery varies considerably in different armies, but the general plan followed may be briefly described. The organization comprises batteries, battalions, regiments, and brigades.

The battery is the unit specially charged with the delivery of fire. The higher artillery commanders deal particularly with the tactical employment of artillery; the battery commander deals particularly with the technical duties involved in bringing fire to bear, though of course he is liable to have tactical duties, too. The battery comprises from four to eight guns, depending upon the country involved. France has four guns to a battery, England, Germany, and Austria have six, while Russia has eight. The battery equipment also comprises from eight to twelve caissons, or ammunition wagons, carrying approximately 100 rounds each. It has a captain, from two to four lieutenants, and about 175 men.

The battalion (called by the English "brigade" and by the French "groupe") comprises three batteries. It is commanded by a major or lieutenant-colonel who has a staff of officers and enlisted men charged with the duty of securing information and of communicating it to the battery commanders. The regiment comprises two, three, or even four battalions. It is commanded by a colonel who has a staff similar to that of a battalion commander and provided for similar purposes.

The brigade comprises two regiments commanded by a brigadier-general.

For service with the other arms a brigade of light artillery or the equivalent thereof is generally assigned to each infantry division while a regiment of horse artillery is assigned to each division of cavalry. The heavier guns being intended for special services are generally assigned by battalion or regiment to army corps or field armies as needed.

AMMUNITION

Two types of projectiles are generally employed, shrapnel and shell; though several armies are now using a single type projectile, called a high explosive shrapnel, designed to embody the qualities and effects of both shrapnel and shell.

The form of all projectiles is approximately the same, namely, that of a hollow steel cylindrical case with pointed head, having a soft metal band near the base which takes the rifling of the gun and gives the projectile the twisting motion which keeps it steady during flight.

The shrapnel has a combination time and percussion fuse. If the time fuse is set for a given range a train of powder starts to burn as the projectile begins to move from the gun, and flame is thus transmitted to a charge of powder located in the base of the projectile which explodes and bursts the projectile in the air at the desired distance from the gun. In front of the bursting charge is a mass of about 250 round bullets which at the moment of burst are, along with the pointed head, driven out of the front of the cylindrical case. The case remains intact and thus acts as a little mortar, discharged up in the air in front of the troops to be attacked. The bullets, after leaving the case, spread out and, if the burst occurs at the proper height from the ground, they should search very effectively an area about 20 yards wide and 150 yards deep. If the time fuse is not set, or, if it fails to act, the percussion fuse acts automatically when the projectile strikes the ground; but the effect produced is then far more localized than when the burst occurs in the air.

The shell has a percussion fuse only, as a rule, though certain nations, notably the Germans, have a shell with a time fuse too. The walls of the case are much thicker than the case of a shrapnel, and the bursting charge is a high explosive instead of ordinary powder. At the moment of burst the case is ruptured into many killing fragments, though unless the burst occurs on very hard, stony ground the effect is apt again to be very local.

Shrapnel is intended especially for the attack of troops in the open and more or less exposed. Shell is intended especially for the demolition of material objects such as artillery material, walls, buildings, etc., and to reach troops protected by such objects. It may be said that shrapnel is the principal projectile of the lighter guns and shell is the principal projectile of the heavier ones.

A fairly good picture of the effect produced on the minds of soldiers by this fire, reaching them from they know not where, is given in the following extract from a soldier's letter in an English newspaper:

"The Germans are now up to all sorts of tricks to hide their batteries, and much of their

effect is due to the fact that shells drop about your ears when you are least expecting them. It is a favorite trick to keep a battery well masked for hours and then, when our infantry are deploying within range, without the least notion of what is coming, the German shells begin to fall around like the autumn leaves. That's very trying to the nerves, or was at first, but we are now getting used to it."

TACTICAL EMPLOYMENT OF FIELD ARTILLERY

The rôle of field artillery is to assist the infantry. Artillery alone cannot win battles. To rout and disperse the enemy infantry must advance and close with him. On the other hand, infantry may not be able to advance unless the enemy's fire is kept down. So the two arms have to work together in complete mutual understanding and close cöoperation in order to accomplish decisive results. To illustrate this, the attack of an infantry division on a hostile position may be outlined. (The European division comprises approximately 12,000 infantry and from 36 to 72 guns.) The advance guard in the division may be presumed to have gained contact with the enemy and to be pushing forward to gain a favorable position and to determine as closely as possible the dispositions of the enemy. The advance guard artillery is supporting this movement and endeavoring to draw the fire of the hostile artillery so as to locate their positions. Artillery reconnaissance officers are studying the hostile ground, noting on rough panoramic sketches what can be determined of the enemy's positions, especially that of his artillery, and examining the approaches to the hostile territory for suitable positions for their own artillery. Aeroplanes and mounted scouts are assisting in this work. The division commander explains to his chief of artillery his plan of attack. The chief of artillery, accompanied by his regimental and battalion commanders, rides forward, receives reports of reconnaissance officers, and assigns duties and positions to his subordinate tactical commanders. The latter make detailed studies of the situation, bring up and post their battalions and batteries, assigning specific duties to each. The first duty is to gain superiority of fire over the opposing artillery, and, for this purpose, the fire of groups of guns is converged on each hostile artillery position as it is located. This preliminary work may have to be effected at long range, four, five, or even six thousand yards. Heavy guns may be assigned to the division to assist in it. In the meantime the infantry is advancing under the cover and protection of this fire. It must not wait, for otherwise the artillery may spend its ammunition and not be able to help at the really critical moments which are to follow. Moreover, its advance forces the enemy to reveal himself and thus become subject to effective fire. In former wars the idea prevailed that there should be a distinct artillery duel to settle the superiority of artillery fire before the infantry advanced; but with both of the opposing artilleries occupying masked positions the combat between them is apt to be a long-drawn-out and indecisive affair. To accomplish results one side or the other must advance. It is to be noted, however, that in the present European War the efforts seem to be made to shake the hostile infantry by a sustained artillery fire before exposing the attacking infantry. Thus, according to the daily papers, Sir John French reports under date of September 24th: "The object of the great proportion of artillery the Germans employ is to beat down the resistance of their enemy by concentrated and prolonged fire, to shatter their nerves with high explosives before the infantry attack is on. They seem to have relied on doing this with us, but they have not done so, though it has taken them costly experiments to discover this fact."

Against points where strong resistance is offered to the advance of the infantry, special concentrations of fire are ordered. As the infantry gains ground to the front the artillery will probably move forward, too, such movements being perhaps effected at night and the guns strongly intrenched. Finally the infantry gets close enough for the decisive attack. The division commander selects the part of the hostile position against which he is to mass his principal effort and, as the infantry moves forward, the artillery endeavors to smother this locality with a rain of bursting shrapnel, the great proportion of the guns being used for this purpose, leaving a minor number to keep the hostile artillery in check. When the infantry arrives within one or two hundred yards of the position, the artillery must shift its fire to reach neighboring parts of the hostile line, or to reach the enemy's reserves coming up in the rear. While certain groups of artillery attend to these duties, others are pushed rapidly forward to occupy the captured positions, fire upon the retreating enemy, and prevent reinforcements from coming up. Of course, every battle presents its own peculiar set of positions and no rigid plan can be followed. The foregoing is intended merely as an illustration of coöperation between infantry and artillery.

CAVALRY

ITS CHARACTER AND PURPOSES, ITS ARMS AND AMBITIONS—THE MOST SELF-SACRIFICING OF ALL MILITARY UNITS—WITH ESPECIAL REFERENCE TO THE CAVALRY OF THE EUROPEAN NATIONS ENGAGED IN THE PRESENT WAR

BY

GEORGE MARVIN

THE wonderful sweep of Von Kluck's and Von Buelow's armies across Belgium and down into the heart of France in August was made possible by flying divisions of Uhlans, hussars, and dragoons which scoured hostile territory ahead of slow and inexorable infantry and siege trains. No one knew whence or whither the main bodies of German army corps were advancing because their movements were hidden behind a veritable cloud of German cavalry which spread out over Belgium and Picardy like the onrolling fog which the color of their uniforms so well imitated. Every German cavalry division, it must be remembered, normally carries with it, in addition to its four thousand galloping troopers, a full battalion of horse artillery, a pioneer detachment with pontoon bridging materials, cyclist companies, and machine guns. In this campaign they are doing something else brand new. For with each division of cavalry a fleet of fast motor cars and trucks filled with infantrymen has followed along the roads with a mobility hitherto unapproached.

Down to the Marne this rush prevailed for the Allies' cavalry were unable to cope with the Germans' overwhelming numbers and their terrific tactics. So these cavalry divisions penetrated quickly to the main bodies of the allies' armies, unmasked their positions and often, well supported by the prompt approach of crushing infantry columns, made such positions untenable. A great many of the engagements reported during August as battles were merely advanced skirmishes by this screening force of German reinforced cavalry feeling out the way ahead of their main armies whose movements and intentions they effectually concealed.

So far as motor traffic is concerned, such a rush could not be made again for all Europe is suddenly awake to the military necessity of destroying its magnificent highways in the path of an advancing enemy just as railroads have always been destroyed in the wake of retreating armies. But war does not follow the roads alone and so the efficiency of cavalry will continue where wheeled vehicles, however propelled, cannot go.

All of this informational and screening employment of mounted troops, important as it is, and only performed by continual fighting, appeals naturally much less to popular imagination than those heroic charges of past campaigns which have retrieved lost days, saved retreats from becoming debacles, or resulted merely in glorious self-sacrifice. In this last category belongs the charge of the Light Brigade at Balaklava in the Crimean War, but in that same battle six weak English squadrons under General Scarlett, by an equally determined but more intelligently commanded effort, threw back a mass of four thousand Russian Cossacks in the nick of time. The charge of Von Bredow's brigade in the battle of Vionville during the Franco-Prussian War is a famous historic instance of cavalry sacrifice saving a battle.

Beyond Vionville that day in an important flanking position lay the remnants of the Twenty-fourth Regiment of German infantry, ammunition low, without supports, and completely exhausted by the extreme heat. A little over a mile away in front of them the whole French Third Division was drawn up in two lines supported by nine batteries of artillery. Later a French cavalry division rode up and joined forces. Now it is almost a military axiom that cavalry cannot charge unshaken infantry. But that is exactly what happened at Vionville. The German commander, realizing that if the French cavalry charged his German infantry would be lost, determined to sacrifice his own cavalry in an effort to anticipate the French. The nearest available force was Von Bredow's Prussian brigade of six squadrons. They went to apparently certain annihilation as the Light Brigade went at Balaklava but to a better purpose. At the command the whole brigade charged in line clear across the intervening distance of two thousand yards under a desolating fire, reached the French first line and, sweeping over it, piled it up on to the second. In the melee that followed the French cavalry division rode down on them five to one. Then, says the official account:

"General Von Bredow sounds the recall. Breathless from the long gallop, thinned by the enemy's bullets, without reserves, and hemmed in by hostile horsemen, they once more cut their way through the previously over-ridden lines of infantry and artillery; harrassed by a thick rain of rifle bullets and with the foe in hot chase in rear, the remnant of the two regiments

of Prussian cavalry hasten back to Flavigny. The advance of the Sixth French Army Corps was checked and was now, by order of Marshall Bazaine, entirely abandoned. At any rate the French made no further advance from Resonville this day."

Von Bredow saved a defeat. Conversely, if the Japanese had possessed any cavalry worthy of the name in Manchuria in 1905 the Russian defeat at Mukden might have been turned into an overwhelming catastrophe. Two efficient cavalry divisions of the kind that swooped from Aix-la-Chapelle to the Marne, might have easily cut off the retreat of the entire demoralized army of Kuropatkin, might thus have made peace at Mukden instead of at Kwangchengtzu some months later, and have won for Japan the indemnity the nation so greatly needed and then deserved.

The most recent and striking example of the heroic self-sacrifice of cavalry in saving situations is that of the Ninth Lancers' charge at Quievrain near the Belgian border on the 3d of August. They rode point blank at a battery of eleven German guns which were shelling the British retreat, reached them, sabred the gunners, and put every gun out of action. On their way back, however, they were shelled on both flanks and lost all told more than forty per cent. of their number.

DIFFERENT ARMS IN USE

The mounted troops of all the countries now at war are armed very much alike. All of them carry carbines. The Civil War did that for European cavalry. All of them have sabres also. All the German cavalry regiments, but not all in other countries, are armed with a lance. Only commissioned and non-commissioned officers carry revolvers now. The United States Army has never adopted the lance, and cavalry officers in this country believe the present war will mark its passing from the armies of Europe. It is interesting, however, to know that Austria in 1863, Russia in 1884, and France in 1871, abolished this weapon. But every one of these countries has now readopted it and is using it in the present war.

The Germans, incidentally, are not to-day and never have been the equals of the French in sabre play. This inferiority in one weapon of assault may explain some of their dedication to another arm. At all events the Germans claim special advantages for the lance. They say it has a far greater moral effect than any other form of the "arme blanche" (white arm) both objectively and subjectively when borne by a line of charging horsemen; that it adds greatly to the impact efficiency of shock tactics; that it is invaluable when riding down broken, opposing cavalry; easier to use against crouching or prone men on foot, and that it produces particularly dangerous wounds. As a famous swordsman of Marlborough's time said, apropos of both lance and sword, "One point is as deadly as forty cuts." A sword cut rarely, but a well delivered thrust with sword or lance always, throws a man off his horse.

The two chief objections to the lance are that it hinders the mobility of dismounted action and is less useful than the sabre in a melée. And indeed in most men's hands a pike nine or ten feet long would seem a cumbrous thing at close quarters. Nevertheless, many instances to the contrary are on record. At Königgratz the lancers of the Eleventh Uhlan Regiment proved superior to Austrian sabres in a general mix-up, and the famous charge of the French Guard Lancers at Mars-la-Tours inflicted a twenty-seven per cent loss against Prussian cavalry armed in that fight with the sabre.

There must have been an extraordinary amount of cavalry engagement in the withdrawal of Sir John French's army from Mons to Noyon when General Allenby and General Sordet with their combined forces held the Germans in check long enough to save the allies' left wing. When the true detailed account of all that charging and counter-charging comes to be written there will be plenty of data for the last word on cavalry arms, data which it is impossible now to obtain from the published accounts.

The use of the carbine brings up the moot point of the value of dismounted action for cavalry which is a subject on which opinions are as irreconcilable as are politics ina Latin-American republic. Universal adoption of the carbine in all countries is sufficient indication of its value but, as the firearm is seldom or never used from the back of a horse, its possession imports into cavalry tactics very difficult decisions as between shock action mounted and fire action dismounted. Naturally one would be appropriate where the other would not, choice depending on character of terrain and particular results to be achieved. But the strong advocates of dismounted action are apt to turn the cavalry into mounted infantry regarding a horse chiefly as a very mobile means of transportation.

Against these riflemen the hard riding school —and they are the real cavalrymen—maintain that a trooper's chief asset is not his carbine, his lance or his sabre, but is his horse and that his chief rôle is hard riding. Unquestionably troops which are led to rely on fire action become much less intrepid horsemen, their instinct when in difficulties being to dismount and take cover. In the Valley of the Shenandoah in 1864 the Confederate squadrons were armed only with rifles whereas the Federals under Sheridan were trained both to shoot and charge. The result was significant. The Southerners, though better natural horsemen, were beaten at every turn, so that their commander had at last to report that his mounted infantry were absolutely useless against the Union cavalry. "In Germany," writes a British military critic, "it is held that mounted infantry cannot hold the field against a highly trained cavalry, for sooner or later they would be caught when in the saddle and then, before they had time to

dismount and fire, it would be all over with them."

Judging by the present war the time for shock action has not yet passed any more than it had in Von Bredow's time. Any one who has tried it knows the extreme difficulty of hitting a galloping horseman charging directly head on in open order as always against infantry or artillery. Another thing must also be borne in mind. The very severity of fire in modern actions means that cavalry will repeatedly find broken infantry or batteries to rush under the protection of supporting artillery and infantry.

VARYING CAVALRY ORGANIZATIONS

When comparing the organization and equipment of the cavalry regiments of the five great nations engaged in this war and the composition of their several divisions, in general, it must be understood that cavalry is employed in two distinct capacities: either independently in the form of cavalry divisions attached to armies or as divisional cavalry, i. e. small auxiliary bodies of horse, forming with artillery and infantry a regular division of an Army Corps.

The average European cavalry division contains from 3,000 to 5,000 troopers, and from 5,000 to 10,000 men all told, for it must be remembered that such a unit includes as subordinate detachments batteries of horse artillery, signal and pioneer corps, and sometimes cyclist companies. It is, in fact, a small galloping army in itself, like a fast battle-cruiser at sea, capable of tackling anything of its own strength and of out-manœuvring the heavier ordnance and numbers it cannot hopefully engage. Divisional cavalry, on the other hand, rarely operates independently of the particular infantry division to which it is attached.

Up to the outbreak of the present war modern German cavalry, with the exception of the Guards Division at Potsdam and Berlin, was organized only in brigades. But the progress of the war already shows that the German plans contemplated the mobilization of many of their 102 mounted regiments into flying divisions. Only one squadron is now assigned as divisional cavalry to each infantry division with special detachments of "Meldereiter" for orderly work, messenger service and mounted picket duty. In this matter of organizing their mounted troops, as in the range and power of their field artillery, there was much which the Germans ably concealed in the time of preparation from their adversaries.

France had at the outbreak of war 91 regiments, including the 10 regiments of African cavalry. But, unlike Germany, of her mounted forces only 37 regiments are, or were in July, organized into independent divisions. The war caught the French War Office just beginning to consider plans for a rearrangement, some of the divisional brigades having already been assembled in the early summer, probably with a shrewd premonition of war in the air, for independent exercises together.

Austria-Hungary has a three-fold cavalry system with 42 line regiments—having the extraordinary number of six squadrons in each—supplemented by the Austrian Landwehr of six Uhlan regiments and a Hungarian Landwehr of ten regiments of hussars or, as the Hungarians call them, "Honved."

Russia has at its disposal an almost fabulous amount of cavalry if one counts in all the "sotnias" (half regiments) of Cossacks which now in time of war are available. Luckily for Germany and Austria "Cossack" is no longer the same terror-bringing word it was before the Russo-Japanese War for in that losing conflict the supposedly irresistible Rough Riders of Asia failed to make any impression on the armies of Nippon, burdened as they were with their own awkward squadrons of almost seasick horsemen.

As a nucleus of his European mounted force the Czar of Russia has 83 regiments of the line. But reckoning in the Orenburg, Kuban, Astrakan, and Trans-Baikalian Cossacks he can marshal something like 1,800 "sotnias" of men on horseback. Ghengiz Khan had not so many when he rode out of Asia in the twelfth century into Muscovy and hung like a black cloud over Europe.

Just how many mounted troops Sir John French has with him at this writing in France to harry Von Kluck's weary right wing cannot be accurately determined now. Whatever they may be in quantity, they have proved their quality.

You can fashion a fairly adequate infantry brigade or a field battery in a few months but you can't make a useful squadron of cavalry in less than three years. As General Von Bernhardi, looking forward to this war, wrote five years ago, "A few days training at a pinch will turn out an infantry soldier or gunner whose presence need not necessarily be either dangerous or even detrimental to the efficiency of his company or battery. An unbroken horse or a bad rider may create confusion in the ranks of the steadiest squadron." In this greatest of all wars the sacrifice of cavalry will be proportionately great. And such losses can never during the course of the war be made good.

HOW THE MOTOR AFFECTS WAR

BY MAKING POSSIBLE THE QUICK MOVEMENT OF LARGE BODIES OF TROOPS AND OF HEAVY ARTILLERY, AND BY IMPROVING THE RANGE AND EFFECTIVENESS OF THE COMMISSARIAT—THE ENGLISH, FRENCH, AND GERMAN MOTOR EQUIPMENT AND ITS PERFORMANCE IN THE PRESENT CONFLICT

BY

REGINALD McINTOSH CLEVELAND

A RED CROSS man recently described a significant incident of one of the battles on the Russian-German frontier, in the following words:

"I was walking beside one of our carts. We could hear heavy artillery fire as we went along, when shouts from our people behind warned us to get off the road. We pulled on to the grass, and there came thundering past, bumping from one rough place to another on the poor road and going at a sickening pace, a string of huge lorries (auto-buses) crowded with infantrymen. They looked like vehicles of the army establishment, all apparently alike in size and pattern, and each carried about thirty men packed like cigars in a box.

"The lorries were traveling like no motor wagon that I ever saw—certainly at not less than forty miles an hour—and they seemed endless. I didn't count them, but there were not less than a hundred, and perhaps a good many more.

"That was Rennenkampf reinforcing his threatened flank."

It is an interesting picture—a dashing Russian general sending two or three thousand reinforcements to a weak spot in his line by motor.

During and after the battle of the Marne thousands of French soldiers went to the front from Paris in a long line of taxicabs. Earlier in the war whole fleets of omnibuses from Picadilly and the Strand, flaring with British advertisements, rolled to the front bearing English infantrymen.

In Belgium a certain lieutenant caused havoc among the advance patrols of Uhlans by sheathing a car in armor and mounting a machine gun which he used with deadly effect. The regular method of transit for British officers from the Channel ports to the firing line is by motor car, the trip taking from four to five hours. The leading Continental and British racing drivers are acting as pilots for the commanding officers. Boillot, winner of the Grand Prix a year ago, is serving as chauffeur for General Joffre.

There are French motors carrying huge searchlights mounted on stands with small wheels. These stands may be removed from the body and pushed to the desired position, attached by current wires to the wagons, from which they draw the necessary electricity.

Motor cars are used by the several armies as tenders for aircraft. Special trucks are fitted as repair shops both for aeroplanes and for the other motor equipment. They are able to carry disabled flying machines from the field. They transport machines, in folded form, to the desired base of operations. The French have a whole fleet of trucks for this purpose. This coöperative type of service between motors for land and air has been carried to a high point of development by the Russian War Department. Three aeroplane-carrying trucks and a motor-driven repair shop form, in the Russian army, an independent unit known as an *escadrille*. Almost enough parts and materials are carried to rebuild a complete aeroplane in the field.

Most of the ambulances are motor driven—some being really field hospitals in miniature containing operating tables and even X-ray apparatus; others are purely ambulances, the largest of which can carry fourteen wounded men comfortably.

The field wireless stations are mounted on automobile chassis. But these special uses, spectacular and efficient as they are, are second in importance to the automobile services in transporting food for men and guns and in some cases the guns themselves. The great siege guns of the Germans which have played such a prominent part in the fighting are drawn by special motor tractors which do the work of forty horses whenever the nature of the country permits.

Lighter guns, also, in both German and French services, are drawn by motor tractors which pull along the caissons as well. The military critics have pointed out, indeed, that the German army could not have shown its marvelous mobility in the march on the Seine or in the subsequent retirement had it not been for its complete motorization.

England has been somewhat behind the other combatants in the hauling of guns by motor car, but some tests made just before the outbreak of hostilities were so successful that it is safe to assume that the same thing has been tried by the British expeditionary force on the Continent. In these tests a record-breaking

dash was made by the West Riding Territorial Battery of Royal Horse Artillery from Sheffield to the coast. The guns were hitched to powerful touring cars and were thus drawn in nine and one half hours a distance which it would have required from three to four days to make with horses. The guns were drawn ninety-nine miles on eight gallons of gasolene. There was not a single breakdown on the road, and the brakes on the cars proved entirely sufficient to hold the guns and limbers on the hills.

THE MOTOR WAR SCYTHE

The Germans, in addition to the mammoth gun tractors, have developed another type of effective and rather novel motor apparatus—a cross between a motor truck and a steam roller, weighing five tons or more and fitted in front with broad roller wheels. It will tear a way through barbed wire entanglements, brushwood, and *cheveaux de frise*. On the hubs of the front wheels long knives are set at an angle like scythes, somewhat in the manner of the chariot wheels of the ancients, though of course their object is to clear obstructions, not to cut the enemy.

Certainly the amazing characteristic of the campaign in France has been the speed displayed by both sides. It is here that the motor car shows its great superiority. It is the handling of the transportation problem for so vast an army as the Germans have put in the field that has amazed the military experts.

This subject has been deeply studied by our own War Department, of course, and interesting comparisons have been drawn by it between the speeds and mobility of horse and motor transportation which apply very closely to the present situation.

ENORMOUS SAVINGS IN SUPPLY TRAINS

Under the old system, to supply a division composed of 20,000 men, which is the chief fighting unit of the United States Army, requires 662 four-mule wagons to carry forage, rations, and ammunition. These wagons are capable of carrying five days' reserve rations and grain and a small ammunition reserve. Even with all these wagons a division can keep supplied only from a depot about two days' march in the rear—a day's march being determined by the distance which can be covered by the transportation wagons, being twelve miles under ideal conditions of climate and road. In addition to the wagons already mentioned, 269 of other types of vehicles, including ambulances, caissons, field wireless, and wagons for sappers' materials and pontoons are required. This makes a total of 961 vehicles with approximately 4,000 animals for each 20,000 men. But all this equipment will not give the fighting force a radius of more than twenty-four miles from its base, should that base be upon a railroad; if it be not on a railroad an enormous number of additional wagons is required.

One vital consideration is the amount of space occupied on the march by the transportation column and, in consequence, the amount of protection which must be given it. Each of the vehicles at present assigned to a division of the United States Army occupies about twenty yards of roadway. In other words, if the 961 wagons were in column on a single road they would stretch eleven miles! The difficulty of guarding such a column may be easily imagined. In addition, the average load of these vehicles is only about 3,000 pounds apiece.

According to our War Department most of these disadvantages of horse or mule equipment would be abolished or minimized by the use of motor vehicles. A truck that is capable of carrying 4,000 pounds is by no means a large one, yet this increased capacity alone would mean a reduction by 25 per cent. in the number of wagons needed, or from 961 to 720. Furthermore, a saving of road space of at least 25 per cent. would follow the use of motor trucks, and this saving, with the smaller number of vehicles required because of greater load capacity, would reduce the length of the column of march from eleven miles to less than six miles.

Lastly, but probably most important of all, the mobility of the fighting force would no longer be dependent on that of the wagon train, for at an average speed of ten miles an hour the day's march of the motor wagons would far exceed any possible day's march of the troops. This liberation of the troops would mean that the base of supplies could be much farther in the rear than with animal transport—hence probably in a far safer position—and supplies could be brought up from an enormously greater range of country.

Germany realized clearly the value of efficient motor transportation long before the outbreak of the present combat. Calculations were made by the General Staff which showed that to supply an army consisting of four army corps and two cavalry divisions at a distance of eighty miles from its base, 4,050 wagons, 4,900 men, and 8,100 horses would be required under the old method. With motor trucks, however, the same force under like circumstances could be supplied by 550 trucks and 2,200 men. For the ability to put such motor trains in the field in time of need, Germany was ready to pay handsomely. The subsidy system in force just before war was declared was, therefore, a generous one. Trucks of the specified types, ranging in weight from two to five and a half tons on the rear axle, were made attractive to the individual owner by an original payment made to him of $428 by the Government upon his purchase of the vehicle followed by four annual payments of $190.50. If a trailer was provided with the truck—a method of which the Germans are fond—the first payment was $714 and the annual payments $285. Of course the arrangement contemplated the immediate turning over of the equipment to the army for war purposes, the participation in manœuvres,

and inspection as to fitness several times each year.

In France a truck, in order to be subsidized, must be entirely of French manufacture, must be in commercial use in France, and must conform to the requirements of the military authorities. The bounty to the owner is on a sliding scale, with a total which varies according to the type of machine from $1,000 to $1,800.

The German army has also used the subsidy plan for passenger automobiles. The members of an organization known as the Volunteer Automobile Corps pledged themselves to put their cars, after the latter had received the approval of the army experts, in the field in war.

"THE LAWS OF WAR"

BY

LYMAN BEECHER STOWE

THE so-called Laws of War are naturally much discussed and frequently referred to at the present time. Many of these discussions indicate "more heat than light" and few people appear to have any clear idea of what these laws are, when, how, and by whom they were originated and formulated, whether they are written or unwritten, and what are the means for their enforcement. The Laws of War consist; first, of certain general principles regulating the conduct of civilized warfare which have been generally accepted by the principal nations of the world: second; of written rules which have been formulated at international conferences and ratified for the nations. Properly speaking they are not laws because there is no means for their enforcement except public opinion and retaliation on the part of the aggrieved party, which is expressly provided for within certain limits.

The Laws of War, like all other international laws and rules, may be traced back to Hugo Grotius, and his great book, "De Lege Belli," published in 1625. Up to the time of our Civil War, however, there seems to have been no effort at codification. In 1863 the War Department of the United States Government issued a manual of the laws governing civilized warfare which has been brought up to date and is now being distributed among the officers of the United States army. It is this manual upon which I base my statements and from which I quote regarding the present status of the laws of war.

In 1864 an international conference assembled in Geneva to take means for the better protection and care of the sick and wounded in war. It was at this conference that the work of the Red Cross societies first received international official sanction and encouragement. Four years later, in St. Petersburg, an international conference forbade the use of explosive or expanding bullets because they caused unnecessary suffering. In 1874 a congress of the principal powers, excepting Great Britain and the United States, met in Brussels and formulated international rules for the use of armies in the field. Great Britain and the United States did not enter the congress because of their feeling that it was called in the interest of the powers which maintained great standing armies. Six years later the Institute Droit International issued a manual of instructions for the conduct of armies in time of war upon the provisions of which the first Hague Conference in 1899 very largely based its "regulations respecting the laws and customs of war on land." At this conference an attempt was made to restrict the use of scientific discoveries in cruel and unusual methods of warfare. In 1906 was held another Geneva convention at which were adopted further rules for "the amelioration of the condition of the wounded and sick of armies in the field," and then came, in the following year, the second conference at the Hague which confirmed and further developed the work of the first conference. These are, then, the chief landmarks in the growth and evolution of the laws of war as at present accepted by the leading nations of the world.

The laws provide that: "Belligerents are forbidden to move troops or convoys of either munitions of war or supplies across the territory of a neutral power."

"The fact of a neutral power resisting, even by force, attempts to violate its neutrality can not be regarded as a hostile act." From this it is evident that even had Belgium desired to do so it would have had no right to grant Germany's request for its armies to cross Belgian territory, and further that Belgium's effort to prevent this by force was not a hostile act. In the Franco-Prussian War "Germany complained that no measures were taken by the Grand Duchy of Luxemburg to prevent French troops from crossing their territory and violating their territory." At that time France violated the neutrality of Luxemburg just as has Germany at the present time, and Germany complained then just as the Allies have now.

Germany's alleged annexation of Belgian territory is prohibited under the following

rule. "Being an incident of war, military occupation confers upon the invading force the right to exercise control for the period of occupation. It does not transfer the sovereignty to the occupant, but simply the authority or power to exercise some of the rights of sovereignty" and further, "Subjugation and conquest imply the annexation of the property or territory by the conqueror through the treaty of peace, and with it the sovereignity." From this it would appear that Germany would have no right to annex any Belgian territory until the conclusion of peace and then of course only in case she still occupied such territory.

In regard to the conqueror's rights in occupied territory the following law is pertinent: "If, in addition to the taxes mentioned in the above article (this article states that the conqueror has the right to levy and collect the taxes levied and collected by the government of the conquered territory provided the same are used to defray the expenses of governing the territory), the occupant levies other money contributions in the occupied territory, this shall only be for the needs of the army or of the administration of the territory in question."

In the same spirit the rules run: "An army of occupation can only take possession of cash, funds, and realizable securities which are strictly the property of the State; depots of arms, means of transport, stores, and supplies, and, generally, all movable property belonging to the State which may be used for military operations.

"The property of municipalities, that of institutions dedicated to religion, charity, and education, the arts and sciences, even when State property, shall be treated as private property.

"All seizure of, destruction or willful damage done to institutions of this character, historic monuments, works of art, science, is forbidden, and should be made the subject of legal proceedings." This rule, however, is qualified by another which states that even such property may be destroyed if made use of for hostile acts against the invader.

"No general penalty, pecuniary or otherwise, shall be inflicted upon the population on account of acts of individuals for which they cannot be regarded as jointly and severally responsible.

"Collective punishments may be inflicted for such offenses as the community has committed or permitted to be committed. . . . For instance, a town or village may be held collectively responsible for damage done to railways, telegraphs, roads, and bridges in the vicinity."

These rules are further modified by those authorizing retaliatory measures under certain conditions. Under this head are the following: "The law of war can no more wholly dispense with retaliation than can the law of nations, of which it is a branch. Yet civilized nations acknowledge retaliation as the sternest aspect of war. A reckless enemy often leaves to his opponent no other means of securing himself against the repetition of barbarous outrage." And again, "Villages or houses etc. may be burned for acts of hostility committed from them where the guilty individuals cannot be identified, tried, and punished. Collective punishments may be inflicted either in form of fines or otherwise."

Hence it would appear that if the acts which led the Germans to destroy Louvain were such as those enumerated for which the community may be held collectively responsible or were committed by individuals who could not be identified, tried, and punished there was at least a technical justification for the retaliatory destruction. "It is now universally recognized that hostilities are restricted to the armed forces of belligerents and that the unarmed citizens who refrain from acts of hostility and pursue their ordinary avocations must be distinguished from the armed forces of the belligerents, must be treated leniently, must not be injured in their lives or liberty except for cause or after due trial, and must not, as a rule, be deprived of their private property." Then further: "If the people of a country, or any portion of the same, already occupied by an army, rise against it, they are violators of the laws of war, and are not entitled to their protection."

Officers, soldiers, and other persons officially attached to armies, who are sick or wounded, shall be respected and cared for, without distinction of nationality, by the belligerent in whose power they are."

The blowing up of vessels supposedly by floating contact mines such as has occurred in German waters according to press reports is covered by the following rule: "It is forbidden to lay unanchored automatic contact mines unless they be so constructed as to become harmless one hour at most after those who laid them have lost control over them." It should in fairness be added that Germany ratified this convention with reservations and that the rule was largely invalidated by the failure of the Hague Conference to designate a time within which states are obligated to conform with its provisions.

"A belligerent party which violates the provisions of the said regulations shall, if the case demands, be liable to pay compensation. It shall be responsible for all acts committed by persons forming part of its armed forces." Let us hope that when the day of settlement finally arrives all those who, after cool and impartial investigation, are shown to have violated the laws of war may be required to pay full measure in accordance with this provision. In the meantime let us remember, so far as press reports of atrocities are concerned, that such accusations are common in all wars, are often unfounded, and can in the nature of things only eminate from the invaded countries and that invaders can in the nature of things be the only ones accused of such acts.

PRONUNCIATION OF WAR NAMES

THE pronunciations here given do not pretend to be minutely accurate. No system of indicating the pronunciation of foreign names can do more than give a crude approximation of their sound as they come from the lips of a native. All that is hoped for these markings is that they will enable the average American to pronounce them with sufficient accuracy to serve the purposes of everyday conversation. The only attempt to indicate even approximations of especally difficult sounds are the following (1.) *uh* is here used to indicate the peculiar sound of the French *e* and the German *u* which is roughly a compromise between the sound of *er* and the sound of short *i;* (2.) *n* is here used to indicate the French nasal *n*: (3.) *yah*, as a final syllable, is several times used to indicate the prolonged *n* sound in such words as Boulogne. In French no syllable is emphasized over the others.—THE EDITORS.]

Ailette	ay-let
Ailly	eye-yee
Aisne	ain
Aix-la-Chapelle (Aachen)	aks-lah-sha-pell
Amiens	ah-me-an
Andrejew	an-dre'-yeff
Ath	aht
Aube	ohb
Avricourt	av-ree-koor
Baccarat	bak-kah-rah
Bar-le-Duc	bar-luh-duhk
Basle	bah-z'l (German) or Bähl (French)
Bastogne	bas-ton'-yah
Baupaume	bo-pome
Beauvais	bo-vay
Belfort	bell-for
Berry-au-Bac	ber-ree-o-bak
Besançon	beh-zon-son
Bêthune	bay-toon
Bielstock	be-ail-o-stock
Blamont	blah-mon
Bois-le-Duc	bwah-luh-duhk
Bolderaa	bol-der-ah
Borjemin	bor'-yem-in
Bothnia	bot-nia
Boucelles	boo-sel
Bouillon	boo-yon
Boulogne	boo-lon'-yah
Bouvines	boo-veen
Brabant-le-roi	brah-bon-luh-rwah
Braine-le-Comte	brain-luh-kont
Cambrai	kon-bray
Cettinjé	tzet-teen'-yeh
Châlons	sha-lon
Chambley	shahn-blay
Charleroi	shar-luh-rwah
Charleville	shar-luh-veel
Château Thierry	sha-toh tee-air-ree
Châteauroux	sha-toh-roo
Châtel	shah-tel
Chaudfontaine	sho'd-fon-tain
Commercy	kom-mehr-see
Compiègne	kom-pee-ain
Consenvoye	kahn-son-vwah
Coulommiers	kool-om-yay
Craonne	krah-on
Crécy	kray-see
Czech	check
Czenstochowa	chens-toe-há-va
Dave	dahv
Demer	day-mer
Diest	deest
Dijon	dee-zhon
Dinant	dee-nahn
Dnieper	d-n-yeper
Dniestre	d-nes'-ter
Dompierre	dom-pee-air
Donon	do-non
Douai	doo-ay
Düna	due-nah
Durazzo	doo-rót-so
Dyle	dil
Épernay	ay-pair-nay
Épinal	ay-pee-nál
Esemael	ez-mah-ale
Estaminet	ay-tam-nay
Évegnée	ay-vee-n'yay
Eydtkunen	it-koo'-nen
Fismes	feem
Flémalle	flay-mal
Fléron	flay-ron
Gembloux	zhon-blew
Genappe	zheh-napp
Gironville	zhee-ron-veel
Givet	zhee-vay
Grammont	gram-mon
Guise	geez
Gumbinnen	goo'-bin-nen
Haelen	hah -len
Hainaut	ay-no
Hal	ahl
Havre	ahvr'
Helsingfors	hel-zing-fórce
Herk-la-Ville	erk-lah-veel
Herzegovina	hert-se-go-veé-nah
Huy	wee
Jaroslaw	yá-ros-lof
Javorow	ya-vó-rof
Jemappes	zheh-map
Kalisz	kal'-yisch
Kaminietz	car-min-yets
Kieff	kee-yef
Kielce	ke-ail'-ca
Kragnyevatz	krah-gew'-yeh-vahts
Küstrin	kuhs-treen'
La Fère Champenoise	la fair shon-peh-nwahz
Langres	lon-gr
Laon	lon
Lassigny	lah-seen-yee
Le Catelet	luh-kat-lay
Liège	lee-ay'zh
Longwy	lon-vee
Louvain	loo-van
Louveigné	loo-vee-n'yay
Louers	loo-ay
Maestricht	mahs'-trikt
Magyar	mad-yar
Mainz	my-ntz
Malines	mah-leen
Malmedy	mal-meh-dee
Marie-aux-Mines	mah-ree-o-meen
Marseilles	mar-say-yuh
Maubeuge	mo-buhzh
Meaux	mo
Mechelin	mek'-lin
Meuse	muhz
Mézières	may-zee-air
Mitrovicza	mit-ro-vit'-sah
Mons	mon's
Montmirail	mon-mee-rye
Morava	mo-rah-vah
Mouilly	moo-yee
Namur	nah-muhr
Nancy	nahn-see
Neu-Breisach	noy-bry'-zach
Neufchâteau	nuh-sha-toe
Niemen	n-yay'-men
Nivelles	nee-vell
Nogent-le-Retrou	no-zhahn-luh-ruh-troo
Nomeny	no-meh-nee
Noyon	nwah-yahn
Oise	wahz
Ostrowa	os'-tro-va
Oudenarde	ohd'n-ard
Ourcq	oork
Ourthe	oort
Péronne	pay-ron
Petit Croix	puh-tee-krwah
Petit Morin	puh-tee-mo-ran
Petrograd	pietro-grad
Pont-à-Mousson	pon-ta-moo-son
Przemysl	p-shem-isl
Quatre Bras	kat'r-brah
Radziviloff	rad-zee-veé-loff
Ramillies	rah-mee-yay
Raon l'Étape	rah-own-lay-tap
Rawa-Russka	ra-va-russ-ka
Remiremont	ruh-meer-mon
Rethel	ruh-tel
Revigny	ruh-vee-n'yee
Rheims	rance
Rocroi	rok-wah
Roisel	rwah-zel
Romilly	ro-mee-yee
Roubaix	roo-bay
Roye	rwah
Saale	zah'-leh
Saarlouis	zahr-loo-ee
Salles	sahl
Sarajevo	sa-ra-yay'-vo
Save	sah-veh
Scutari	skoh-tah-ree
Sedan	seh-don
Senlis	son-lee
Sézanne	say-zan
Soissons	swah-son
Soldau	zol'-dow
Somme	sum
Sonilly	son-ee-yee
Sonplets	son-play
Souain	soo-an
St. Bonhomme	san-bon-om
St. Blaise	san-blaze
St. Cécile	sant say-seel
St. Dié	san-dee-ay
St. Dizier	san dee-zee-ay
Ste. Menehould	sant-meh-neh-ool
St. Mihiel	san-mee-yel
St. Quentin	san-kon-tan
St. Remy	san-ruh-mee
St. Trond	san-tron
Stavelot	stah-vel-lo
Stettin	stet-teen'
Suwalki	soo-vál-kee
Tarnow	tár-nof
Thann	tahn
Thorn	torn
Thiaucourt	tay-o-koor
Thielt	teelt
Thionville	tee-on-veel
Tirlemont	teer-leh-mon
Tomaszow	to-ma-tshoff'
Tongres	tong'r
Tournai	toor-nay
Tournant	toor-nahn
Tremmelom	trem-mel-on
Trier	treer (French Trèves trav)
Trois Vierges	trwah vee-erzh
Troyes	trwah
Valenciennes	val-lon-s'yen
Valievo	val-yay-vo
Varennes	vah-ren'
Velpa	vel-pah
Verdun	vair-dun
Versailles	ver-sigh-eh
Verviers	vair-vee-ay
Vervins	ver-van
Virton	veer-ton
Visé	vee-zay
Vitry-le-François	vee-tree luh fron-swah
Volhynia	vol-lee-ne-a
Vosges	vo-zh
Vouziers	voo-zee-ay
Waag	vag
Waelhem	wahl'-em
Warthe	war'-teh
Wavre Ste. Chaterine	vav'r sahnt kah-treen
Wesel	vay'-zel
Woevre	wuhvr'
Yvoir	eev-wah
Zamost	zar'-mosh